

TOWARD A MODEL FOR ASSESSING USER SATISFACTION  
WITH A UNIVERSITY STUDENT HEALTH SERVICE

By

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Abstract of Dissertation Presented to the Graduate  
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DESIGN A MODEL FOR ASSESSING USER SATISFACTION  
WITH A UNIVERSITY STUDENT HEALTH SERVICE

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The purposes of this study were to (a) develop and administer an instrument for assessing user satisfaction with health care provided by a university health service, (b) assess validity and reliability of the instrument, (c) test the instrument through data collection at two times, (d) compare user satisfaction at time of service delivery and at a later time, and (e) provide administrators with information used for improving health care in that institution, as steps toward developing a model for use in the subject institution.

Using the Assessment Institutional Cycle design, I established a model framework for assessing users' perceptions of health care quality received in a

universalizing-setting health services and provided baseline data for this cyclical quality assurance activity.

I developed, protected, and administered a questionnaire including a multidimensional assessment that yielded a satisfaction index. In 408 of 552 users visiting the facility during 3 days of the spring, 1984 academic term. The index was formed by summing users' satisfaction ratings of 16 neutral items. The index was used to compare (a) satisfaction of health service users completing questionnaires, when users were grouped by self-reported responses to 10 additional questionnaire items, and (b) responses of a subgroup of survey respondents on questionnaires completed immediately after the health care encounter and 2 to 4 weeks later. The study subgroup was 161 of 408 users completing the initial questionnaire administration.

Questionnaire validity and reliability were assessed. Data collected were analyzed using item and factor analysis and analysis of variance regression. Two significant findings were generated relating to users who participated in the initial administration of the questionnaire: (a) those users of the appointment system were more satisfied than those users and (b) those who waited less than 15 minutes to see a health care provider were more satisfied than those waiting 15 to 40 minutes. No significant difference was found between subgroup responses when questionnaires were completed immediately after care encounters and 2 to 4 weeks later.

Recommendations were included for improving the instrument and administration methods in future user satisfaction data-collection cycles at the subject facility.

## CHAPTER 1 INTRODUCTION

The rise of consumerism has increased interest in the satisfaction of patients with the delivery and quality of services that health care facilities provide. Such factors as new and sophisticated medical equipment and treatments, soaring health care costs, inequitable distribution of health care providers, and growing dissatisfaction with marginal increases in health status have fueled this interest. Health consumerism has spread to all segments of society, including colleges and university campus settings. In this study, I developed and tested an instrument with which to assess consumers' attitudes about the health care and services they receive in one university student health service setting.

Assessing the quality of care that health service facilities provide is a complex but necessary activity. Those providing the service need information to plan, maintain, modify, and improve current and future health care and services. Evaluators can most accurately assess the quality of health care through quality assurance programs that use a variety of measurement strategies, including medical audits, peer reviews, accreditation inspections,

and patient satisfaction surveys (Schles-McNinch, Curry, Taylor, Woodbury, & Gertler, 1981).

The Joint Committee on Accreditation of Hospitals (JCAH), a group responsible for accrediting all hospitals, including college health services, mandates that quality of care be monitored in accredited facilities. JCAH accreditation requires that institutions follow detailed standards relating to organization and administration of health service facilities. The standards promote broad, systematic assessing and evaluation of information about important aspects of patient care. In order to determine whether the institution seeking accreditation is meeting the standards, JCAH representatives conduct site visits. Assessment of patient satisfaction with health care is one aspect of ongoing, systematic monitoring of quality and appropriateness of patient care ("Quality Assurance," 1989).

JCAH accreditation does not guarantee high quality health care but is a form of consumer protection. A lay person examining a health care facility is often unable to judge the overall quality of care at that facility. JCAH accreditation places the responsibility for health care supervision in the hands of medical experts who can better observe day-to-day procedures and policies in action (Curry, 1981, pp. 140-141).

If typical health service users lack technical expertise to judge the quality of health care they receive,

Why is the collection of patient satisfaction data an integral part of a quality assurance program? Several factors relate to this question.

Though lacking in technical medical expertise, patients (users) make many decisions in the health care process. Patients decide (a) when they are ill (Kortman & Marcus, 1978), (b) who to see for health care (Kortman & Kortman, 1974), and (c) whether to follow the prescribed treatment regime (Gavin, 1983). Patients make crucial decisions about access to medical care and compliance with prescribed treatments based on their attitudes about present and past health care encounters.

#### Quality of Care is Student Health Service Evaluation

According to the American College Health Association (ACHA), the major goal of a college student health service is the promotion and maintenance of conditions that permit and encourage individuals to attain optimal physical, emotional, intellectual, and social well-being (American College Health Association, 1978). This major goal remains unchanged today. To accomplish this broad goal, a student health service in a college setting must attract appropriate student use. Investigators have identified satisfaction with health care as a major factor influencing student use of campus health services (Clark, 1974; Goodknecht, 1980; Teft, 1976).

Regardless of their lack of technical and medical qualifications, student health service users make judgments

about the quality of care they receive. These judgments influence students in their use of campus health services. Furthermore, health service users probably share their evaluations of student health facilities with their peers, broadening the impact of these judgments and underscoring the importance of user assessments of quality of care received (Liao, Rasmussen, McDonald, & McKay, 1978). Since college health service users are also making decisions regarding the use of health services, college health administrators have come to realize the importance of (a) emphasizing factors having a positive influence and (b) avoiding factors having a negative influence on consumers' attitudes about health care (Johnson, 1979).

Evaluations and users' patient satisfaction at many levels. Findings have producedly different implications depending on the setting in which care is delivered and the aspects of the care that respondents are evaluating. Specific needs for patient satisfaction assessment are as diverse as are characteristics of individual health care facilities.

College health service settings are similar in that populations of the respective campuses are relatively homogeneous and services are frequently prepaid to some degree. However, even staffs of college health facilities have varied needs for patient satisfaction data. Differences in services institutions provide, quality of facilities,

and the nature of health service staffing necessitate creation of valid and reliable instruments for assessing patients' attitudes about health care encounters receive in specific settings.

The goal of assessing quality of care in health service facilities is often the improvement of future health care services ("Quality Assessment," 1984). Even though assessment of the quality of health care uncovers factors influencing usage of and satisfaction with health care, the focus of this study is on user satisfaction with health care services provided in one university health care facility.

In this study, I examined current users' perceptions of health care offered at a university health service by questioning users of that system about their levels of satisfaction or dissatisfaction with the health care services they received. Sampling only users is an incomplete method for identifying problems because dissatisfied users may not return for care after an unsatisfactory visit (Bassman & Messinger, 1981). Also, other potential users may not use the health service facility for a variety of reasons. Since patient satisfaction assessment is an ongoing part of quality of care monitoring, in future investigations I will examine usage as well as satisfaction. Time and resource limitations precluded this design.

Another limitation of measuring only user satisfaction with health care encounters is that of cognitive dissonance.



When one purchases a product or uses a service, the tendency is to put oneself on the line for making a good choice, positively skewing responses. For this reason, investigators must look closely at any aspects of patient satisfaction that elicits rates below the highest level of satisfaction on assessment instruments (Osterweis & Howell, 1973).

Effects of cognitive dissonance may be offset at a college health service setting because many student users are not aware that they purchase the care they receive (McDaniel, 1978). In some college settings such as at the subject university, prepayment for health services is included in tuition or activity fees. For this reason, some student users are unaware that they are paying for health services.

Even though payment for health services is included in tuition fees at the subject university, students are probably aware that they are paying for health services because the tuition bill for each semester includes a separate assessment, called the health fee, for using the student health service. Although students are probably aware of their prepaying of a health fee at the subject university, the effects of cognitive dissonance may be offset by the fact that payment of the health fee is mandatory for full-time students (students registered for seven or more semester-hour credits) and optional for

part-time students (students registered for fewer than seven semester-hour credits). For either full- or part-time students, attention is drawn to payment of the health fee each semester when students of the subject university are paying tuition fees.

### Statement of the Problem

Patient satisfaction research in college health facilities has become increasingly popular yet generally yields data of questionable value. Limited time, funding, and research knowledge of many user satisfaction investigations have produced standard data but little sound research based on analysis of these findings. Additionally, replicating patient satisfaction research is difficult because the goals of assessing user satisfaction, as well as the means of acquiring patient satisfaction data, vary according to staffing, clients served, and the variety of services a particular health service facility offers. Consequently, investigators of user attitudes toward health care in college settings can make few generalizations based on accurate and efficient collection and use of satisfaction data.

### Purpose of the Study

The primary purpose (Purpose 1) of this study was (a) to develop an instrument (based on a review of the instrument investigations developed and administered six times

during the preceding 4 years in the student health services) with which to assess user satisfaction with health care provided by a university health service, (b) to assess the validity and reliability of the instrument, (c) to test the instrument through the collection of data at time of service delivery and at a later time, and (d) to compare the level of user satisfaction at time of service delivery and at a later time, as steps toward developing a model for use in the subject institution).

A secondary purpose (Purpose 2) of this study was (a) to group and compare survey participants by their self-reported responses to demographic and usage questions obtained in the respondent-reported data section of the questionnaire, (b) to compare these groups and their mean levels of satisfaction with the subject student health service as measured by the Patient Satisfaction Index (PSI), and (c) to provide administrators of the subject student health service with data organized to reflect differences in satisfaction of groups of users categorized by their self-reported characteristics in order to identify problem areas in providing student health care in that institution.

### Background of the Study

Investigators often assess patients' attitudes about health care at a time most likely to provide the highest return rate: In ambulatory care facilities, such as university health service facilities, researchers frequently survey

immediately following health care service delivery (Mazgalskovic, 1979; Detorenia & Howell, 1979).

In assessing both satisfaction and usage, investigators often mail survey questionnaires to reach the appropriate population (Liao et al., 1979). Assessing usage requires surveying users and nonusers of a health care facility. Since nonusers are not accessible in the health care facility, investigators survey a sample of the total student body by mailed questionnaires to locate users and nonusers of the health care facility. Investigators sometimes collect nonuser data through home interviews but the costs of this method often prohibit its use (Detorenia & Howell, 1979).

In a hospital-based satisfaction study, Carey and Foreman (1981) used mailed questionnaires because they suspected that questionnaires completed by patients while still hospitalized would be nondiscriminately favorable to the hospital under evaluation. There would be rising satisfaction with health care before they were aware of the outcomes of their health care encounters.

In satisfaction surveys previously administered in the subject student health service, investigators collected satisfaction data immediately following health care encounters. In this way, questioners could survey a large percentage of those using the student health service during a 3-day period. The statement by Carey and Foreman cited

among, raised the issue, Would ratings of patient satisfaction be different when patients were allowed time to assess the outcomes of their diagnosis and prescribed treatments? The literature contains no evidence that others have addressed this question in research in college or other health care settings.

### Research Hypotheses

Beginning with a user satisfaction assessment instrument that previous patient satisfaction investigators developed in-house, I incorporated findings from previous administrations of that instrument, added recommendations from investigators cited in the review of literature that follows, and developed a user satisfaction instrument to test the following hypotheses:

#### Hypothesis 1

The following hypotheses relate to the development, assessment of the validity and reliability, and testing of the subject instrument.

Hypothesis 1a— Users' responses to the open-ended, comments item on the questionnaire will not identify important aspects (dimensions) of satisfaction that were either (a) omitted or (b) not clearly or adequately addressed by the patient satisfaction data items included in the Patient Satisfaction Index (a numerical summary of patient satisfaction).

Hypothesis 2. The item-analysis study of interrelationships between each of the 13 items comprising the Patient Satisfaction Index and the index itself will yield item/index correlation coefficients greater than .40 ( $r > .40, p < .05$ ). Each item will also correlate significantly using a 5% confidence level with the other items in the scale ( $r > .40, p < .05$ ). This hypothesis represents a test of item homogeneity for the Patient Satisfaction Index.

Hypothesis 3. The factor-analysis study of interrelationships among the selected domains of satisfaction and the Patient Satisfaction Index will yield domain/index correlation coefficients greater than .40 ( $r > .40, p < .05$ ) and domain/index correlation coefficients greater than domain/domain correlation coefficients. This hypothesis represents a test of domain homogeneity.

Failure to reject the preceding three hypotheses will support the validity of the 1981 Patient Satisfaction Questionnaire.

Hypothesis 4. Mean Patient Satisfaction Index values will not differ significantly using a 5% confidence level when users are surveyed immediately after the health care encounter and when the same users are surveyed by mail 2 to 4 weeks later.

Failure to reject this hypothesis (there is test-retest measure of instrument reliability) will support the reliability of the Patient Satisfaction Questionnaire over time.

### Figure 3

The following hypotheses relate to data expected to reflect differences in the satisfaction of groups of respondents categorized by their self-reported characteristics.

Mean scores for user satisfaction with student health services as measured by the Patient Satisfaction Index will not differ significantly (using a 1% confidence level) when users are grouped and compared based on

Hypothesis 3, university classification;

Hypothesis 4, the number of times the user has been seen by a health care provider at the subject student health service;

Hypothesis 5, the patient's awareness of the appointment system at the subject facility;

Hypothesis 6, whether the patient used an appointment for this particular visit;

Hypothesis 7, the length of time the patient waited to see a health care provider;

Hypothesis 8, the type of practitioner providing the health care services;

Hypothesis 9, services the patient used during the health care visit;

Hypothesis 10, the total time the patient spent during the health care encounter;

Hypothesis 11, whether the patient did or did not have health insurance, and

Hypothesis 2, the perceived seriousness of the health problem precipitating the visit to the subject student health service;

### Limitations, Delimitations, and Assumptions

#### Limitations of This Study

1. Because of the unique character of each patient satisfaction research effort and setting, investigators must avoid making generalizations beyond the health care setting of interest. The generalizability of this study is further limited since subjects were not randomly selected from the total population of university student health service users. Subjects were conveniently selected from those visiting the facility between 9:00 a.m. and 3:00 p.m. on three successive days. Results are characteristic of the study group only. Chapter IV includes descriptive statistics comparing the conveniently selected study group to the total population of potential users of the subject student health service.

2. The follow-up study group was also conveniently selected from those participating in the principal administration of the questionnaire. Although I instructed questionnaire administration personnel to ask as many of those participating in the principal administration of the questionnaire as possible to participate in the follow-up study, performing research in the natural setting made it impossible for them to request participation of every



principal questionnaire survey respondent in the follow-up study. In situations where several respondents completed the principal questionnaire administration at the same time, questionnaire administration personnel decided which respondents to ask to participate in the follow-up study. Also, some principal questionnaire survey participants declined to participate in the follow-up study. For these reasons, results of the follow-up study are characteristic of the subgroup of those participating in the principal administration of the questionnaire only. Chapter IV includes descriptive statistics comparing the principal questionnaire administration study group and the follow-up subgroup of respondents.

4. The use of bulk-rate mail for administration of the follow-up questionnaire was an additional limitation to this research project. The use of bulk-rate mail made it impossible to determine if nonrespondents had not received the follow-up questionnaire or if they had received it but failed to complete and return it to the investigator. The use of bulk-rate mail probably resulted in a lower follow-up survey response rate than I would have realized had I used first-class mail.

5. An additional limitation of the follow-up, test-retest measure of instrument reliability was a lack of control over intervening variables that may have influenced respondents' perceptions of satisfaction with

the student health service between the principal and the follow-up administrations of the questionnaire.

5. Due to numerous surveys taking place in the subject facility at approximately the same time period, I posted the instrument outside of the student health service facility. As a result of this decision, I was aware that the instructions for completing the instrument were, in some cases, confusing for those respondents who visited the facility only to use the pharmacy. Because a large number of respondents were in this category of respondents, approximately 50% of respondents did not complete the entire patient satisfaction data section of the questionnaire--the section used to calculate the patient satisfaction index.

6. According to the literature, mailed surveys sometimes yield response rates as low as 10%, while 50% is considered adequate by Raboin (1973, p. 145). Respondents may leave some questions unanswered when completing on-site or mailed surveys. Therefore, while 50% of mailed surveys may be returned in a particular research project, the researcher may find a much lower percentage of surveys that include responses to all items on the questionnaire, especially when sensitive items are included. According to Bailey (1982, p. 150), the investigator realizing a return rate of 10% may find the return rate of usable surveys to be as low as 10%. Questionnaire administration personnel were used in this study in hopes of increasing the percentage of usable surveys.

Considering the situations above, I felt that the 15% rate for unusable surveys was within reasonable limits.

7. The research instrument provided several study limitations. Despite two pretestings, the instrument I developed had not had prior trials as other research studies. Also, I constructed all questionnaire items as the respondent-reported data and patient satisfaction data sections in a forced-choice format (see Appendix A for the complete survey instrument). Respondents rated patient satisfaction data section items on a Likert scale with the following possible response options: very satisfied, satisfied, neutral, dissatisfied, very dissatisfied, and unable to answer. Variable interpretations of response choices could potentially distort study results.

8. In several questionnaire items, respondent-reported data were collected on the basis of accurate participants memory and self-reporting. Memory error and purposeful distortions are two possible consequences of questionnaire items relying on participant recall.

9. Data collection in the natural setting with the advantages and disadvantages of working in the real world enhanced the practical applicability of the study but limited control of some variables.

### Delimitations of This Study

This research study was delimited to:

1. subjects who visited the subject student health service during the 5-day data collection period,
2. subjects who participated in the study voluntarily, and
3. factors affecting user satisfaction with health care services provided at one university student health facility. Factors affecting frequency of use of these health services were not the focus of this study.

### Assumptions of This Study

Explicit as these limitations and delimitations are the following assumptions:

1. Participants responded independently to questionnaire items;
2. Each recorded response was the response intended by the individual completing the questionnaire;
3. Questionnaire administration personnel and data collection procedures did not influence responses of study participants; and
4. The time period for data collection was representative of typical student health service usage during nonpeak periods.

### Definition of Terms

The following terms are defined as used in this research study:

The terms patient satisfaction, consumer satisfaction, or user satisfaction are used interchangeably to describe the extent to which users are pleased or displeased with health care encounters at the subject student health service (Ware, 1981). The focus of patient satisfaction research in this study is users' perceptions of the quality of care they received in the health care facility. In this study, satisfaction is assessed by items relating to the personal relationship established between the user and the health care professional, the professional competence of the health care provider, and the cost and convenience of using the subject student health service for health care needs.

Student health services are health care facilities operating on the campuses of higher education institutions to meet the health care needs of student communities ("Quality Assurance," 1984).

The Patient Satisfaction Scale is a numerical summary of satisfaction with health care (Ware, 1981). I gave numerical values to the Likert scale response choices. I totaled respondents' ratings to form a numerical summary of satisfaction. I did not compute a satisfaction index for questionnaires that respondents did not fill out completely or when respondents were unable to answer any of the patient satisfaction data section items. A high score reflected satisfaction while a low score reflected dissatisfaction.

The Patient Satisfaction Index scale (the 11 items) is the patient satisfaction data section of the questionnaire included items on three subscales or domains of satisfaction with medical care and services.  multidimensionality is a measure of how well items included in one subscale or domain related to only this one dimension of satisfaction (Storpe & Finkelstein, 1978). This term was also used in determining how well all patient satisfaction data section items (the Patient Satisfaction Index scale) related to the sample concept, satisfaction with health care received.

A patient satisfaction questionnaire is an instrument designed to measure the extent to which patients are pleased or dissatisfied with services provided in a health care facility.

patient or user are used interchangeably to describe any student or eligible affiliate seeking health care or related services at the subject student health service.

Access to health care or accessibility are terms used interchangeably to describe the ability of users to obtain or make use of services provided by a health care facility (Burke, 1974). Access to health care includes such factors as the geographic location of the facility, the hours of its operation, and the ability of the staff to communicate effectively with patients.

A health care facility is any setting where staff provide health care and services to patients whether on an inpatient or outpatient basis (Herry, 1981).

A health care professional or provider is one who gives health services and includes physicians, nurses, pharmacists, dentists, and numerous types of allied health and technical personnel (Boyles, Marquis, & McCauley, 1989). These terms do not apply to administrative and other support personnel who do not hold medical or allied health credentials and are not directly involved with health care provision.

Opportunistic administration personnel were (a) employees of the subject student health service from the Quality Assurance and Health Education divisions and (b) student volunteers who managed the collection of patient satisfaction questionnaires during the 3-day data-collection period.

Medical treatment regimes are the activities health care providers plan to improve the health status of a patient seeking health care services (Taft, 1996).

A discrete/ordered dichotomy has only two response options that are mutually exclusive (e.g., yes or no).

Demographic variables are characteristics that describe populations or subpopulations of individuals. Investigators frequently use characteristics such as age, sex, national origin, religion, and race in research to group subjects for comparison.

Usage refers to the consumption of health care services to meet the health-related needs of individuals. Patient satisfaction investigators are interested in (a) availability of health care services to individuals, (b) factors promoting the appropriate employment of these services, and (c) barriers interfering with purchase of health care provision such as the lack of individual's knowledge about how to use a health care system, the costs of using that system, and previous negative experiences within a particular health care system (Dunne, 1979; Ware, 1981).

Quality assurance is the systematic, comprehensive monitoring of the quality and appropriateness of patient care ("Quality Assurance," 1984).

### Organization of the Study

This chapter contained an introduction to the study, an explanation of the problem, and a statement of the hypotheses to be tested. Chapter II is a review of the literature related to the assessment of patients' perceptions about the health care they receive at a specific facility. Chapter III includes research methodology, instrumentation, data collection procedures, research design, and data analysis. Chapter IV is a presentation of descriptive and statistical results. The final chapter contains a summary of findings, implications of the study, and recommendations for future research in this area.



## CHAPTER II REVIEW OF LITERATURE

Stuckelmeier (1960) articulated the rationale for making subjective assessments of patient satisfaction. He identified patient satisfaction as a factor directly influencing compliance with medical regimes and decisions regarding access to care.

Even though investigators frequently measure satisfaction with medical care in health service settings, their reasons for making these assessments vary considerably. The focus of patient satisfaction measurement depends upon (a) the goals of the institution conducting the assessment, (b) the information needs of the institution, (c) the setting in which the care is delivered, and (d) the variety of health care services to which consumers have access.

The varying needs of health care facility staff members for patient satisfaction information have resulted in the development of a number of methods for measuring quality of care. Medical and nursing audits, peer reviews, accreditation surveys, and quality assurance programs evaluate technical aspects of the care delivered by health service professionals.

According to Linkow, Rogness, and Hengst (1981), even though health care personnel have made great advances in the

scientific management of disease, using a more current approach to health care may be more productive in terms of achieving or maintaining health status. Patient attitudes about health care provide medical care professionals and administrators with valuable information complementing traditional assessments of quality of care.

In spite of growing popularity of consumer satisfaction surveys, patient satisfaction research has progressed slowly for several reasons. Two basic problems have plagued satisfaction investigators: (a) which data to collect, and (b) how to use the information once collected. Additionally, the widening conceptualizations of patient satisfaction have resulted in differing needs of administrators for patient satisfaction data. Since satisfaction mirrors the experience of a specific group of patients using a specific health care situation at a given time, the structure of the satisfaction assessment instrument should reflect those unique experiences. Mixing and comparing patient populations that have different experiences are inappropriate strategies when the purpose of patient satisfaction research is problem identification (Bastowy et al., 1980). The following three examples demonstrate the inappropriateness of comparing populations with different health care experiences and reinforce the need for patient satisfaction investigators to create facility-specific instruments.

The assessment of satisfaction with health care in long-term care facilities often focuses on quality-of-life

issues. When a patient may spend weeks, months, or years in a health care facility, factors such as food, noise level, comfort, and cleanliness of surroundings become major components of satisfaction with care (O'Sullivan, 1983).

In some care facilities, patients often cite amenities as being important aspects of satisfaction with care. Even though patients should be made as comfortable as possible, an argument can be made that focusing on amenities is not an effective way to evaluate quality of health care. Since patients admitted to some care facilities are often seriously ill and may be candidates for surgery, assessment of satisfaction sometimes focuses on patients' reactions to technical aspects of quality of care (O'Sullivan, 1983).

Satisfaction with ambulatory care, which has been shown to have a significant impact on patient compliance with prescribed treatment regimens (Berker, Bradman, & Kirsch, 1978; Friedman, 1971) and willingness to return to the ambulatory care setting (Haberstein, Levin, & Wilkes, 1987) is strongly influenced by accessibility (Haberstein & Howell, 1979), staff courtesy (Francis, Korsch, & Harris, 1989; King & Goldman, 1979) and waiting time (King & Goldman, 1979; Lohw, 1974).

Problems associated with deciding what data to collect and how to use them, coupled with the need for numerous replications of patient satisfaction studies, are not the

only situations hampering the progress of patient satisfaction research. Ware, Davies-Reavy, and Stewart (1978) identified another problem with assessments of patient satisfaction. They cited methodological shortcomings focusing on the failure of investigators to adequately assess the validity and reliability of patient satisfaction assessment instruments in most of the patient satisfaction research they reviewed. They concluded that the full potential of such surveys will not be realized until scientists can measure satisfaction with acceptable levels of validity and reliability.

The literature review contains findings from patient satisfaction research conducted in a variety of health care settings. Even though the investigators cited in the following pages explored user satisfaction in diverse settings, knowledge of their procedures, findings, and recommendations yields valuable information for the design of this and subsequent studies.

#### Research Relating to the Primary Purpose of This Study

The primary purpose of this study was (a) to develop an instrument based on a review of the six instruments used during the previous four years in the subject student health service, with which to assess user satisfaction with health care provided by a university health service, (b) to assess the validity and reliability of the instrument, (c) to test

the instrument through the collection of data at time of service delivery and at a later time; and (d) to compare the level of user satisfaction at time of service delivery and at a later time, as steps toward developing a model for use in the subject institution.

The research cited in the preceding section of the review of literature related to the need for patient satisfaction investigations (a) to develop health care facility-specific instruments for assessing patient satisfaction and (b) to cyclically replicate and improve their instruments and research methodologies.

The research cited in the following sections pertains to the development of patient satisfaction assessment instruments and the assessment of these instruments in terms of their reliability and validity.

### Development of Satisfaction Surveys

Most early patient satisfaction research relied on broad, general questions for collecting data. Early satisfaction investigators used single-item questions and captured global measures of satisfaction with health care (Francis et al., 1989; Woolley, Kane, Hughes, & Wright, 1978). To health care administrators, the non-specific, qualitative information gathered was of limited value for identifying problems in health care facilities and for devising strategies for improving health care delivery.

Efforts to formalize multidimensional measures of patient attitudes about health care appeared in the literature of the late 1960s and early 1970s. In this second line of research, investigators used multiple-item inventories or scales and component scores rather than global measures for assessing patient satisfaction with health care provided.

The most widely reported of these efforts was a patient attitude scale developed by Holln, Symanski, Casari, and Thompson (1970). These researchers were dissatisfied with the direct questioning techniques previous researchers used because (a) respondents tended to reply in a socially acceptable manner, rarely expressing negative attitudes, and (b) direct questions failed to provide an unbiased, quantitative score reflecting the level of satisfaction or dissatisfaction for each respondent (Holln et al., 1970).

The attitude scale of Holln et al. (1970) was developed using the Thurstone Method of Equal-Applying Intervals technique to identify items to be included in the following three dimensions (domains) of patient satisfaction: (a) patients' views of the professional competence of the physician, (b) patients' perceptions of their personal relationship with the physician, and (c) patients' views of the cost and convenience of the medical care they received. The researchers also investigated the relationship of

demographic variables to the results of an administration of the attitude scale in a community health care setting.

The Thurstone method required the development of a large number of statements thought to express varying degrees of favorableness or unfavorableness toward medical care. The statements were then submitted to three panels of expert judges who rated each statement on a continuous ranging from extremely favorable to extremely unfavorable. Each statement was given a median score and an estimate of variance dependent on the degree of consensus among the judges. Those statements which lay at equidistant points along the scale (index) and exhibited high consensus were then divided into two parallel forms to test the reliability of the scale. Respondents were given one or the other of the dichotomously-scored, parallel forms as the instrument. Each parallel form contained 12 to 14 statements on each of the three domains of satisfaction identified (professional competence, perceived qualities, and cost/convenience issues). Respondents were given written instructions requesting them to agree or disagree with each statement on the instrument. Even though patients completing this instrument still responded in terms of being satisfied or dissatisfied with health care, the scale allowed respondents to dichotomously rate numerous aspects of health care satisfaction (Falka et al., 1970).

The following year, Holka, Szymanski, Cassel, and Thompson (1973) tested the scale in a household survey in a low-income area of North Carolina. And later, Holka, Rupper, Daly, Cassel, and Schaefer (1978) reported a third administration of the satisfaction scale as revised by Szymanski, Holka, and Cassel (1974). The ultimate objective of this replication of research was to develop a usable instrument for measuring patient attitudes about medical care in a community primary-care setting. The data-collection instrument included the satisfaction scale as well as questions requesting demographic data about respondents. With these data, the investigators could determine the relationship between expressed levels of satisfaction and demographic variables. In performing the statistical analyses of these four administrations of the scale, the investigators focused on measuring and increasing the validity of the scale.

The research of Holka et al. (1973, 1971, 1978) confirmed the hypothesis that patient attitudes toward the different domains or subscales of satisfaction with health care varied considerably. Several characteristics of respondents and their interaction with the medical care system were associated with levels of satisfaction. High levels of satisfaction with professional competence were associated with higher educational and occupational levels, having hospital insurance, a regular physician, and a recent



physician visit were correlated with higher, immediate satisfaction scores as indices. Survey respondents were less satisfied with the costs and convenience of care than with physicians' professional competence or physicians' personal qualities exhibited during health care encounters (Bulka et al., 1975).

In the replicative study mentioned earlier in this section, Lysaski et al. (1974) modified the content, format, and scoring method of the satisfaction scale developed by Bulka et al. (1971). They wrote the items in a Likert format, providing a range of five response options from strongly agree to strongly disagree. The Likert format allowed for greater discrimination of the intensity of a respondent's belief regarding an issue. The Likert format and use of scale product method produced scores consistently more reliable than scores computed using the Thurstone Method. Internal consistency reliability estimates for the scale product scoring method used in this study were personal qualities of physicians, .73, professional competence of physicians, .86, and cost/convenience of care, .88 (using a 95% confidence level).

Even though the analysis of validity of the satisfaction scale developed by Bulka et al. (1975) was restricted to estimates of face validity, this research established the credibility of assessing satisfaction with health care using a multi-faceted scale. Values given to

response choices on the scale could be summed to create a patient satisfaction component score or index. The satisfaction index expresses the respondent's general level of satisfaction with health care. This methodology enabled researchers to determine if groups of respondents differed on their mean satisfaction index values.

### Validity and Reliability of Satisfaction Scales

Other investigators interested in patient satisfaction then turned to more rigorous measures of the validity of satisfaction scales. Some researchers analyzed the validity of the scale more extensively than Finkh and her colleagues by applying to their data evaluation factor-analysis procedures and measures of unidimensionality of the three domains of the scale developed by Finkh et al. (1979). An examination of the work of these investigators follows a discussion of item and factor analyses.

In assessing the content validity of a scale, item and factor analysis determine if respondents agree to related statements in a similar fashion. The assumption is that if one set of items measures some underlying trait, then that trait should cause the items to covary. The intercorrelations of the items within each of the domains (clusters of related items) of satisfaction are calculated and compared within and between domains. The within-domain average correlations should be higher than the between-domain

average correlations if the items have been previously clustered into domains of a concept such as patient satisfaction.

The more closely related the items within clusters (domains), the more likely (a) the correlations between related items will predict the direction of a response on a given item, and (b) the cluster is measuring only one aspect of the concept of interest. When a cluster of items measures only one aspect, it is said to be unidimensional. Items showing highest correlation with each other will also show the highest correlation with a total scale score or index that is based on the summation of these same item scores.

Ware and Snyder (1979) made a more extensive attempt to document the use of factor analysis in assessing items for a patient satisfaction scale. They combined 38 items from several satisfaction scales and demonstrated the existence of four domains of satisfaction that were responsible for 72% of the variation in respondents' scale scores. Their domains of satisfaction included access to care, continuity of care, availability of services, and physician conduct. Internal consistency reliability coefficients of the four total subscales ranged from .44 to .83. In later studies using this sample Gurets (1978), Bengt and Rasmussen (1978), and Stewart and Macklin (1979) reported results similar to those of Buika and her colleagues.

Georgeladeff (1978) surveyed a military population to test a 15-item patient satisfaction scale. The final version of the questionnaire contained three components or subscales: physicians' interactions, nonphysicians' interactions, and auxiliary services provided. Factor analysis produced reliability coefficients for the three derived domains that ranged from .87 to .91. These three domains accounted for 87% of the variation in patients' ratings of satisfaction (Georgeladeff, 1978).

Stamps and Finkelstein (1978) reappraised the importance of the work of Ware and Snyder (1975) but pointed out a major flaw in their work. By combining items from several attitude scales, researchers jeopardized the integrity of the individual scales. This criticism reiterated the need for scales reflecting the unique experiences of particular groups of health care consumers in particular health care settings.

Stamps and Finkelstein (1978) reported on three additional administrations of the satisfaction scale Balke and her colleagues had developed and written about in 1976. Stamps and Finkelstein used extensive statistical analyses to produce measures of both validity and reliability of the scale. Their goal was to determine the unidimensionality of each of the three domains or subscales of satisfaction that Ware and Snyder (1975) had reported. Stamps and Finkelstein began with item analysis discussed earlier.

A brief description of the other statistical procedures Stamp and Finkelstein (1978) used follows.

Stamp and Finkelstein (1978) used the Guttman technique of scalogram analysis. This stringent test for unidimensionality yields a coefficient of reproducibility which is an estimate of the probability of the scale measuring one concept. The appropriate level for acceptance as determined by Guttman was a coefficient of reproducibility of .85 at a 95% level of confidence (Hanson & Kruskal, 1978).

A second component of the Guttman scalogram model, the coefficient of scalability, tests one of the major assumptions of the Guttman model, that of whether the scale is cumulative. The appropriate level for acceptance as Guttman determined it is a coefficient of scalability of .88.

The results and conclusions of the analyses by Stamp and Finkelstein did not support the existence of three independent domains within the satisfaction index. In the third administration of the scale by Mass and Snyder (1973) item analysis by Stamp and Finkelstein demonstrated that few items on each subscale (domain) of satisfaction were related with the emergence of the professional competence subscale. Also, only on the third administration of the scale (Smith et al., 1971) did the Guttman scalogram analysis produce a coefficient of reproducibility equal to .80 and a coefficient of scalability equal to .88.

The results of the factor analysis by Stamps and Finkelstein (1988) of the third administration of the scale by Sulka et al. (1975) indicated that the attitude scale was composed of four domains or subcales of satisfaction with one of them accounting for 41% of the variance in attitudes. The best results occurred in a much more limited research setting than the origination of the scale had hoped—that is, with patients who were interviewed as they waited to receive medical care.

Validity implies that one can obtain a reasonably unbiased estimate of that which one claims to measure. The analysis by Stamps and Finkelstein disclosed the degree to which each of the three subcales was unidimensional. Sulka and Symons (1981) defended the original scale by posing two important questions: Is unidimensionality the most accurate indicator of validity? Are the three analytic strategies used by Stamps and Finkelstein appropriate in terms of the design and intended use of the satisfaction subcales?

According to Sulka and Symons (1982), although unidimensionality is one of the desirable properties of attitude scales, as is hard to conceive of a topic such as attitudes toward physicians and medical care as being viewed in the home on a unidimensional framework. Attitudes toward medical care are based on a diversity of substantive issues, and they are influenced by

individual experiences and psychological characteristics as well as the circumstances surrounding scale administration. Bulke and Byrneski (1982) proposed that validation of patient attitude scales be based on a more general understanding of their content and some consideration of their purpose and use.

Responses to the items within a given subscale or domain should be such that the items cluster, as evidenced by the correlation coefficients in an item analysis. But satisfaction investigators still face questions concerning how large these coefficients should be. If they are too high (.80 or above), one may argue that some of the items are redundant. On the other hand, a low coefficient indicates that a particular item is not conforming to the response pattern of the whole set of items. Low correlation coefficients may indicate that such items are irrelevant, inappropriate, or misunderstood by respondents. According to Nunn (1981), items that belong in the scale will correlate substantially (.40 or higher) with each other (a test for item homogeneity) and with the same subscale or domain.

Bulke and Byrneski (1982) also questioned use of the Guttman Scalogram method in patient satisfaction research. These researchers felt that Guttman scaling is not relevant when individual items cover a broad range of subject matter. Personal experience will allow attitudes toward the subject matter expressed in some items more than others. Analytic

strategies relevant to the study of abstract attitudes may be inappropriately interpreted when they are applied to scales that entail a large experiential component (Fisher & Ryanokki, 1982).

According to Fisher and Ryanokki (1982), factor analysis may also be an inappropriate validity measure in patient satisfaction research. Factor analysis may not be successful in developing components of a patient satisfaction scale. Again, these researchers reiterated the thought that specific needs for specific satisfaction data may outweigh the results of analysis techniques that may be inappropriate for evaluating the measurement of concepts that are so heavily influenced by the experiences of respondents.

In his study of acquiescence response set, Ware (1978) documented the tendency of respondents to agree with all items, whether positive or negative in affect. The agreement of respondents may be so great as to account for 25% of the variation in the interview correlation analyses. The distortion in responses resulting from acquiescence response set will confuse results of factor analysis and decrease interpretability.

According to Ware (1978), validation of instruments designed for measuring attitudes toward complex subjects such as health care delivery is not a purely technical problem. The purpose for which an instrument is designed is of primary importance, and the character of the subject



rather about which attitudes are being evoked must be understood. Measured attitudes are influenced by personal experiences of respondents and circumstances surrounding administration of the scale (Ware, 1978). The most important test of the validity of a scale may be its utility--the extent to which it serves the intended purpose.

In an article defining the dimensions of patient satisfaction, Ware (1981) defined five major dimensions of satisfaction. These dimensions (domains) of satisfaction were determined by content analysis procedures conducted by Ware, Snyder, and Wright (1978) of published satisfaction instruments. Ware (1981) described the dimensions as follows:

Quality of care. The most frequently measured dimension of satisfaction pertains to the amount of caring (act of care) shown toward patients, the competence of providers (technical aspects of care), and outcomes of care, measured in terms of perceptions regarding the usefulness or helpfulness of medical care providers and specific treatments in improving or maintaining health status of patients.

Accessibility/availability of health care. This dimension includes all factors involved in arranging to receive health and medical care services.

Finance. Financial aspects of access to care are defined as dollar costs of treatments, flexibility of

payment mechanisms, and the comprehensiveness of insurance coverage.

Physical environment. Sources of satisfaction with the environment of care include general pleasantness of the atmosphere, attractiveness of waiting rooms, comfort, clarity of signs and directions, lighting, cleanliness, and the orderliness of facilities and equipment.

Availability of health care. Measures of this dimension usually focus on whether enough clinics and hospitals are available in an area, and whether these facilities are staffed with enough health care providers.

In recommendations to patient satisfaction investigators, Ware (1981) advised that not all surveys need to include each of the five dimensions described above. When interest is in satisfactoriness constructs that existing instruments do not measure, the investigator can include and test these items for reliability and item discriminant validity.

The studies described in the preceding pages are representative of patient satisfaction research focusing on the reliability and validity of attitude scales. Researchers are being more careful about the construction of instruments for measuring patients' attitudes about health care and are analyzing the results more stringently when reliability and validity of the assessment instruments are the research focuses.

### Questionnaire Administration

Survey administration procedures are an integral part of the facilities in which researchers assess patient satisfaction. Bulkin and her colleagues (1978, 1971, 1973a-b) and Snyder (1973), and Coates (1973) relied on interviews in the homes of patients. In two general medical university hospital outpatient clinics, Comstock, Hooper, Gordon, and Gordon (1981) and Wilson-Morlock et al. (1981) relied on self-administered questionnaires completed on-site for collection of satisfaction data. Carey and Posner (1978) surveyed by mail inpatients who had been released from a teaching hospital.

In college student health service settings, Callahan, Ryan, and Gremston (1982) and King et al. (1978) assessed usage and satisfaction by analyzing data they collected from mailed surveys and Holmquist (1978) collected satisfaction surveys focusing on usage and satisfaction on the campus of the student health service of their interest but at another location (the students under on the same campus).

The literature on patient satisfaction contains little information on the use of questionnaire administration personnel. Marriage, Behr, Bousberg, and Davis (1983) considered using such personnel for on-site administration of satisfaction questionnaires but elected to use ward clerks on each floor of a teaching hospital for collecting surveys.

In a 3-week data collection cycle in the general medical ward of a teaching hospital, Nelson-Warwick et al. (1981) used survey representatives to facilitate collection of completed surveys from patients (at the time of their release) who had been inpatients for at least 3 days. The questionnaire representatives took the survey to the room of the patients, explained the nature of the project, assured the confidentiality of responses, and remained in the room to answer questions until the respondent had completed the instrument. The researchers reported that the presence of the survey representatives did not appear to bias responses and contributed to the size of the study sample. The investigators used a stratified random sampling technique for selecting a representative number of patients from each unit on a given floor. Even though the subject hospital in this study averaged 18,000 admissions per year with average stays of 7 days, the researchers felt that this study group of 147 respondents was adequate for satisfaction assessment.

Marshall et al. (1982) conducted a study in a teaching hospital serving 18,000 inpatients per year, surveying inpatients on-site during a 4-week data collection period. The investigators determined the study group size by their desire to increase the 10% return rate of questionnaires administered the previous year. They believed that the response rate of 39% realized during the

data collection of the current year was in part due to the presence of ward clerks facilitating completion of the survey instrument and collecting them upon completion.

The size of the study groups investigators have examined in patient satisfaction research were somewhat determined by the methods of data collection and the methods of selecting study participants. Sample size ranged from 29 respondents (Taylor, Salovey-Hernick, Curvey, Woodbury, and Conley, 1981) to 3,187 respondents (Manginieroff, 1975). After reviewing numerous satisfaction studies, I concluded that the range of sample sizes in studies conducted in other ambulatory health care facilities similar to the subject student health service appeared to be 144 to 500 participants.

According to Sealey (1982), in order to have a minimum number of subjects for analyzing all combinations of groups or variables of interest, one must have at least the minimum sample size needed to represent accurately the population from which one is sampling. The failure of a sample to adequately represent the population is referred to as sampling error. Use of nonprobability sampling provides no basis for estimating sampling error, further complicating the decision about sample size.

Even though many researchers consider 14 subjects to be a bare minimum, Sealey (1982) considered 100 respondents a more reasonable minimum. Since the sampling frame is the

subject study (all users of the student health service during 1944) was unknown, a minimum sample size cannot be determined for this representability sample (the study group). In such cases, researchers attempt to collect data from a study group large enough to allow for the analysis of information from subgroups of interest in the study.

The focus of patient satisfaction research may vary from one health care facility to another, depending on the unique information needs of the facility staff. In the field, patient satisfaction researchers often focus on gathering satisfaction data to improve health care. If investigators have methodologies for assessing patients' attitudes on findings of current research in their area, they can draw sound conclusions on several aspects of patient satisfaction.

#### Research Relating to the Secondary Purpose of This Study

A secondary purpose of this study was (a) to group and compare survey participants by their self-reported responses to demographic and usage questions contained in the respondent-reported data section of the questionnaire, (b) to compare these groups and their mean levels of satisfaction with the subject student health service, as measured by the Patient Satisfaction Index, and (c) to provide administrators of the subject student health service

with data organized to reflect differences in the satisfaction of groups of users categorized by their self-reported characteristics in order to facilitate the identification of problematic aspects of health care provision.

The research that is cited in the following section pertains to the secondary purpose (purpose 2) of this study--design of the instrument so that grouping and comparison of users on their mean levels of satisfaction can be accomplished to facilitate the identification of factors associated with dissatisfaction with health care provision in the subject student health service. In designing the Patient Satisfaction Questionnaire for this study, my decisions (a) to retain items included in the instrument previously developed for use in the subject facility, (b) to revise those items or (c) to use new items, were based upon the findings of patient satisfaction research cited previously in this review of literature and below.

Cronin (1979) assessed the convergent validity of three types of measurement items commonly used in patient satisfaction survey questionnaires. Respondents in this study were outpatients in a comprehensive multiple specialty treatment center. The investigator constructed measurement items to be (a) global measures for rating overall health care received, (b) Likert scale measures

offering a range of response choices for agreeing or disagreeing with statements about health care received, or (c) semantic differential measures that indirectly assess respondents' attitudes by having them react to bipolar statements about health care received.

The investigator found that all three types of measurement items were measuring the same construct (satisfaction with health care received) but two types of items were more closely related (global and semantic differential) than either was to the third type (Likert scale). Results of this study suggest that measurement bias may limit the comparability of patient satisfaction study findings that were based on different types of assessment measures and procedures.

In this study Counts (1979) supported the use of the Likert scale format of the patient satisfaction data section items that were the components of the Patient Satisfaction Index.

Quarman and Howell (1971) developed and administered a patient satisfaction survey at three ambulatory care sites. Their goals were (a) to develop a questionnaire that would be appropriate for patients receiving care from a variety of ambulatory care facilities with diverse organizational characteristics, and (b) to determine whether the survey would yield comparable results when the investigator administered them by mail, by telephone, or on-site.



Site 1 was a developing health maintenance organization (HMO) located outside Washington, D.C. Site 2 was a prepaid group practice in Washington, D.C. Site 3 was a medical school-based, fee-for-service, adult clinic serving inner-city residents. Investigators collected attitudinal data for patients at the three facilities through the use of questionnaires composed primarily of fixed-alternative questions.

Given the time, expense, and personnel necessary to administer questionnaires by mail and telephone, the investigators concluded that on-site questionnaire administrations are adequate for most purposes. Return rates for questionnaires were as follows: 88% of mailed surveys, 46% of telephone surveys, and 84% of surveys administered on-site. The areas of dissatisfaction remained essentially unchanged regardless of how investigators administered questionnaires. This study supported the continued use of on-site patient satisfaction survey administration of questionnaires.

Guterman and Howell (1979) concluded that because the amount of dissatisfaction expressed on-site may be somewhat lower than revealed by mail or telephone surveys, health care administrators should view even a relatively small percentage of dissatisfied patients as a threshold indicating the need for future evaluation and corrective action.

With regard to the source of care itself, Guterman and Howell (1979) described the most significant factors in assessing patient satisfaction as follows:

1. Personal interest and competence of health care providers,
2. The amount of information provided to patients re health problems,
3. Convenience and ease of access to care, and
4. Cost of health care.

Factors 1 and 2 above supported the inclusion of items 1 through 6 in the patient satisfaction data section of the 1984 Patient Satisfaction Questionnaire. Factors 3 and 4 above supported the inclusion of items 7 and 8 in the patient satisfaction data section of the questionnaire.

The questionnaire included an open-ended question asking respondents the reasons for their overall satisfaction or dissatisfaction with the health care they received. Respondents from site 1 focused on technical competence of health care providers, while site 3 respondents focused on human elements of care. Site 2 respondents were mixed in their responses.

Based on the results of this open-ended question included in the questionnaire, the investigators concluded that different populations have different expectations about their health care, and their judgments about quality of care depend on whether these expectations are or are not met. Investigators performing patient attitude studies naively proceed with the assumption that all patients want and expect the same from their health care providers. If

this is not the case, as this study suggests, patient satisfaction investigators would be wise to determine what their patients consider to be the keys to acceptable health care (Geterens & Howell, 1979).

This study by Geterens and Howell (1979) supported the retention of the open-ended comments question on the questionnaire as well as inclusion of the entire respondent-reported data section of the questionnaire.

Malson-Merrick et al. (1981) surveyed patient perceptions of care during hospitalization in a study in a medical university hospital. They randomly selected inpatients who had been hospitalized for at least 3 days. The investigators found that patients previously admitted to the medical university hospital rated the hospital higher than first-time patients of the university hospital, suggesting that some learning occurred during hospitalization. Patients who are more familiar with a particular hospital may perceive it in a more favorable way. An alternative explanation may be that patients familiar with a particular hospital may be more cooperative and somehow assist the staff in providing services to them (Malson-Merrick et al., 1981).

To examine the impact of familiarity with the subject student health service, item 8 in the respondent-reported data section of the questionnaire was revised, item 9 was retained from the previous instrument, and item 8 was added asking, Did you have an appointment for this visit?

In a study conducted in a general medicine outpatient clinic at a state university hospital, Comstock, Hooper, Goodson, and Goodale (1983) assessed patient satisfaction on an 8-item, Likert scale format questionnaire and with ratings of a trained observer on 36 verbal and nonverbal skills reflecting caring behaviors physicians exhibited. The researchers grouped caring behaviors under five categories: information-giving, listening, empathy, nonverbal gestures or physical attention, and courtesy skills.

These investigators found that patient satisfaction correlated strongly with ratings for physician courtesy and information-giving. Other interesting findings of this study were that the investigators found no significant correlation between a physician's appearance, the physician's use of humor, or the average amount of time the physician spent per clinic, and the degree of satisfaction of patients seeing that physician (Comstock et al., 1983).

The investigators felt that these findings were particularly important in terms of compliance with medical treatments. Stiles, Paine, Wolf, and Jones (1975) found that the greater the friendliness and solidarity the physician expressed, the more satisfied and compliant the patient. Findings of Herlihy (1974), Larson and Reisman (1974), and Miller et al. (1976) support the conclusion of Comstock et al. (1983) that information-giving by the

physician and the quality of physician-patient communication correlated positively with patient satisfaction.

The research cited in the preceding paragraph further supported the inclusion of items 1, 2, and 3 in the patient satisfaction data section of the questionnaire. The items represented the personal qualities of the health care provider domain of patient satisfaction.

In a patient satisfaction study, Gillette et al. (1981) mailed a 48-item survey questionnaire to a random sample of 100 students using a state university student health service during the 3-week study period. They found that (a) patient satisfaction correlated significantly with perceived technical competence of the health practitioner and perceived adequacy of interpersonal aspects of the practitioner-patient relationship; (b) a significant relationship did not exist between satisfaction and expectations the patients held of the practitioner's role performance; (c) time waited during medical care encounters was inversely related to satisfaction; (d) a significant relationship existed between health information/education related to diagnosis, prognosis, and treatment plans and satisfaction; and (e) perceived technical competence of the practitioner and the adequacy of the interpersonal relationship between patient and practitioner were the two most important variables influencing patient satisfaction with health care services.

This study supported the inclusion of items 1 through 4 and 6 in the patient satisfaction data section of the questionnaire and items 2 and 3 in the respondent-reported data section of the questionnaire.

Gillies et al. (1984) also found that younger (18-to-19-year-old) students seemed somewhat less satisfied than older students. This finding may suggest that younger students are not familiar with the student health services system of health care. On the basis of this finding and findings of past survey administrations in the subject facility, item 5 in the respondent-reported data section of the questionnaire was retained from the previous instrument.

Liaw et al. (1978) studied graduate student use of a student health service at a large, southern university. Results of this study indicated that a lack of information on available services and access to local health care provided a barrier to access for many graduate students. Affordability and availability were most frequently cited by graduate students as barriers to access. This study supported the inclusion of item 7 in the patient satisfaction data section of the 1984 Patient Satisfaction Questionnaire.

McFadden (1978) initiated a study in a large southern university student health service in response to complaints about a staff physician. In this problem-oriented patient

satisfaction assessment, the investigator constructed a 14-item questionnaire and administered it to students reporting a visit to the student health service during the semester in which he conducted the study.

The purpose of this study was to (a) measure patients' general levels of satisfaction with health care delivered at the student health service, (b) identify specific elements of service in which a low level of satisfaction was found, (c) compare patients' satisfaction ratings of three staff physicians, and (d) define each physician's profile of patient satisfaction.

In general, more patients were satisfied than dissatisfied with the student health facility but their satisfaction seemed to be heavily influenced by the physician who conducted the examination. Results of the study by McPherson (1979) revealed a large disparity among satisfaction ratings for the three physicians. Respondents whose ratings of a physician were low also rated other aspects of satisfaction low. This study supported the retaining and revision of items 7 and 8 in the respondent-reported data section of the questionnaire.

Kiser and Kukulski (1978) and Seeling and Malloy (1978) conducted patient satisfaction surveys in hospitals and concluded that the physical environment prompted suggestions for improvement. Nelson-Burns et al. (1981) conducted a study using patients' multiple ratings of

hospital services and staff work attitudes. Patients rated the combined items on the physical environment of the health care facility (parking, atmosphere, waiting room space, and noise level) lower than all other aspects of care included in the study questionnaire. Even though these studies seem to support the existence of a relationship between patient satisfaction and the physical environment of the health care facility, investigators have yet to determine the strength of this relationship. Item 15 on the patient satisfaction data section of the questionnaire was included in the instrument developed for the subject student health service based on the findings of the research cited in this paragraph as well as on the results of previous patient satisfaction surveys conducted in the subject student health service.

Using the instrument developed on the basis of this literature review, the study of patient satisfaction I conducted in the subject student health facility was similar to other studies in college settings (Gilletto et al., 1982; Liao et al., 1979; McDonald, 1979) in that the purpose was to identify problems with health care delivery and services in one university health care facility. In the studies by Liao et al. (1979) and McDonald (1979) these investigators gathered data relating to previously identified problems. The subject study was similar to that of Gillette et al. (1982) in that both explored variables thought to affect



patient satisfaction as a means of identifying previously unrecognized problems with health care delivery and services. The subject study differed from others conducted in college settings (Gillies et al., 1984; Tang et al., 1978; McManus, 1979) as follows: (a) the use of a multidimensional scale of patient satisfaction producing a Patient Satisfaction Index that could be used to identify variables associated with high to low levels of patient satisfaction and (b) the use of a follow-up administration of the instrument to measure its reliability over time) at a time 2 to 4 weeks later as recommended by Vennally (1984) to minimize the effects of respondents' memories of their responses to the initial administration of the instrument.

### Summary of Literature Review

Researchers have assessed patients' attitudes about health care they receive in a variety of settings using different approaches and conceptualizations. Early investigations of patient satisfaction focused on determining behaviors related to satisfaction, improving satisfaction data-collection and analysis procedures, and using satisfaction data to pinpoint factors that negatively affect patients' perceptions of and attitudes about health care they receive in a particular facility.

In spite of lingering confusion about what data to collect and how to use the information, and the inability to compare studies conducted in different locations for differing purposes, patient satisfaction research has evolved.

### CHAPTER III METHODOLOGY AND INSTRUMENTATION

The primary purpose of this study was (a) to develop an instrument based on a review of the instruments used during the previous 5 years in the subject student health service, with which to assess user satisfaction with health care provided by a university health service, (b) to assess the validity and reliability of the instrument, (c) to test the instrument through the collection of data at time of service delivery and at a later time, and (d) to compare the level of user satisfaction at time of service delivery and at a later time.

The secondary purpose of this study was (a) to group and compare survey participants by their self-reported responses to questions contained in the respondent-reported data section of the questionnaire, (b) to compare these groups and their mean levels of satisfaction with the subject student health service as measured by the Patient Satisfaction Index, and (c) to provide administrators of the subject facility with data organized to reflect differences in the satisfaction of groups of users categorized by their self-reported characteristics to identify problems in providing health care.

If these efforts are successful, this study could serve as a model for assessing users' perceptions of health care encounters in the subject college health service as well as in other college health settings where students have health care experiences similar to those of users of the subject facility.

The research questions investigated were (a) whether mean Patient Satisfaction Index values would differ significantly in a survey of users conducted immediately after the health care encounter and at the administration of the same questionnaire to the same users by mail 3 to 4 weeks later, and (b) whether average user satisfaction with health care provided at one student health service, as measured by a Patient Satisfaction Index, would differ significantly for groups of users categorized by responses to 18 self-reported items included in the respondent-reported data section of this questionnaire.

This chapter contains the following sections: revision/development of the Patient Satisfaction Questionnaire, pre-testing of the instrument, the initial administration of the instrument, the follow-up administration of the instrument, research methodology, and data analysis procedures.

### Background/Development of the Patient Satisfaction Questionnaire

My task was to revise the satisfaction assessment questionnaire administered in the subject student health service during the 4 years preceding this study so that the instrument would better reflect patients' attitudes about health care at the subject facility while still collecting specific information needed by administrators of the subject student health service. The goal of assessing patient satisfaction for the student health service was to discover problems that reduce the levels of satisfaction for users. These problems may influence the users' decisions (a) to comply with treatment regimes and (b) to return to the subject facility for future health concerns and needs. Information collected and analyzed was used to plan for the improvement of future health care services.

### Setting for the Study

This study took place in a student health service in a large (35,880 students) southeastern state university. The student health service does not receive state appropriations. Funding for the operation is derived from (a) revenues the student health service generates, (b) a portion of the student activity fee that is health care related fees, (c) the health fee that is part of the registration fee, mandatory for full-time students and

OPTIONAL for part-time students, and 60 individual fees for services rendered.

The subject student health service offers comprehensive health care at reduced costs along with confirmation of health problems and specialty referrals. Services include a 24-hour emergency unit; laboratory, radiographic and pharmacy services; mental health and women's clinics; sexual health necessary services, health education and a variety of specialty clinics such as allergy, kidney, blood pressure, wart, orthopedics, and plastic surgery.

#### Research in the Natural Setting

According to Bailey (1982), applied research generates findings useful for solving problems of immediate concern. Applied research often entails large-scale studies with subsequent data collection problems. Such studies are expensive and often cannot be conducted without support from a funding agency or firm or institution that has an immediate need for the researcher's findings and recommendations.

In some cases, applied research necessitates experimentation in natural settings (which may be the setting or facility of the funding agency). Investigation in the natural setting allows the researcher the advantages of testing a product in the environment in which it will

be used and administering it to the population for which it was designed. On the other hand, a cost of conducting research in the natural setting may be loss of some experimental control which may confound research efforts.

When the natural setting is that of a health care facility, the researcher must address a variety of additional, unique problems. When the primary mission of a facility is to provide high quality health care and services to the constituency, the staff must avoid disruption in delivery of these services at all costs. In spite of these problems, with proper planning and the support and involvement of facility staff and administrators, the investigator can conduct research in a natural setting. Research can generate valuable information that can be applied to the natural setting and result in beneficial changes. This process can be evaluated by observing resultant changes in future health care and services delivery in that facility.

Even though the first research question of this study focused on the time of surveying users about their attitudes concerning health care at the student health service, the site and setting for data collection were also different. An integral part of the question about time of surveying was a comparison of data collected in the natural setting (institutional) and data collected at a later time outside of the institution.

Even though research in the natural setting may be more difficult to control, the advantages of this type of investigation outweigh the disadvantages.

### The 1993 Patient Satisfaction Questionnaire

The assessment of patients' attitudes about health care received in the subject student health service is but one part of an ongoing quality assurance program designed to ensure quality of health care. During the 4 years preceding the data collection for this study, patient satisfaction researchers at the student health service designed an instrument with which to assess users' perceptions of the quality of care provided. Even though the staff made minor modifications with subsequent administrations of the instrument, it remained basically intact during the 4-year period. When I began this research project, the patient satisfaction instrument consisted of the following four sections (see Appendix 3 for the complete questionnaire).

1. Cover letter: The first page of the questionnaire was a letter signed by the director, Student Health Service, stating the purpose of the survey and assuring confidentiality of responses. Instructions encouraged users to complete and return the questionnaire to collection boxes in the waiting areas of the student health service. The writer thanked respondents for their help with the survey.

3. General respondent data. Respondent-reported, objective data collected in this section described and categorized users of student health service by (a) university classification, (b) knowledge and use of student health service, (c) time required for the health service encounter, and (d) health insurance coverage of the user.

3. Patient satisfaction data. Respondents rated the care they received from health care professionals using the following scales: not used, excellent, good, fair, poor, or no opinion. Using this scale, respondents rated the care they received from physicians, physicians' assistants, nurse practitioners, registered nurses, laboratory staff, pharmacy staff, radiographer staff, nursing assistants/aides, front desk personnel (check-in), and appointment desk personnel. Users were asked if their treatment was explained, if their questions were answered satisfactorily, and if they preferred to see the same health care provider at another visit to the facility was warranted.

4. Comments/questions for improvement. In an open-ended question, respondents were asked to add any comments that would assist in improving student health service and the methods of assessing patient satisfaction with health care delivery.

The two-sided, 4 1/2-by-11 inch questionnaire was printed on heavy-weight, bright green paper. Questionnaires were folded length-wise so that the cover letters appeared



horizontally on the top surface of the folded questionnaire. The questionnaire was folded so that the general respondent and patient satisfaction data sections of the questionnaire appeared on the inside two surfaces. Questionnaires were folded when given to the respondents, to further suggest the confidentiality of the participants' responses. The back surface of the folded questionnaire contained the open-ended comments section of the instrument.

Packs of questionnaires were placed in all clinics and waiting areas of student health services. The staff members were encouraged to remind users of the importance of completing questionnaires. The questionnaire instructions requested that respondents place the completed surveys in the collection boxes located throughout the facility or return them to the front desk personnel.

Staff analyzed data on questionnaires by (a) calculating the percentage of participants who responded to each response choice for each of the 11 questions included in the general respondent and patient satisfaction data sections of the questionnaire, and (b) listing all of the comments found on the back of the instrument.

During the past 4 years, the patient satisfaction investigators have been consistent in their methods of sampling users of the subject student health service. Sampling is summarized in Table 1. Only users of the subject facility have been surveyed in these past studies

First investigators selected dates for data collection that would minimize disruption within the subject facility.

Table 2  
Summary of  
Patient Satisfaction Survey Sampling  
in Student Health Service

Collection Cycle	Days of Data Collection	Patients Seen at SHS	Surveys Completed	Percent of Users Surveyed During Data Collection Period
Apr. 28-May 2 1980	5	*	321	*
Mar. 3-7 1980	5	1033	211	20.4
May 18-22 1981	5	1438	417	27.8
Nov. 10-Dec. 4 1981	5	1564	283	18.2
Mar. 8-12 1982	5	1581	288	18.3
Apr. 5, 8, 11 1983	3	1088	324	29.7
Mar. 18-20 1984	3	952	488	42.7
Notes: * Indicates that data are not available				

#### The 1984 Patient Satisfaction Questionnaire

The revised Student Health Service Patient Satisfaction Questionnaire also consisted of four sections. The rationale for revising each section is included in the discussion that follows.

1. Cover letter. The cover letter remained basically unchanged with the exception of instructions asking students to place completed questionnaires in collection boxes. The initial administration of the questionnaire was still to be accomplished on-site but questionnaire administration personnel would also be present to facilitate data collection. The research of Osterweis and Maxwell (1979) cited in Chapter 11 supported the continued use of on-site questionnaire administration for the initial phase of data collection.

I believed the presence of questionnaire administration personnel asking users to complete surveys, being available to answer questions, and appearing ready to collect completed questionnaires would (a) facilitate data collection and reduce disruption in the subject facility, (b) eliminate the need for survey collection boxes, and (c) increase the percentage of completed instruments returned during the 3-day data-collection period. I also believed that student users would perceive patient satisfaction data collection as more important when questionnaire administration personnel were present to collect completed surveys. Watson-Merclock et al. (1980), cited in Chapter 11, supported using tech personnel.

2. General respondent data. I modified the respondent-reported, objective data section of the questionnaire to further describe and categorize users of the subject facility. The categorizing items still included (a) university classification, (b) knowledge and use of student health

service, (ii) time required for the health service encounter, and (iii) health insurance coverage.

I added a respondent-reported, subjective item for users to report their perceived seriousness of the health problem predilecting their visit to the student health facility. I included this item to determine if a significant difference in patient satisfaction existed when I grouped respondents by perceived seriousness of health problems predilecting their visits. In a study of a college population, Burke (1974) found that perceived morbidity did have an effect on use at the low level of need for health services. I included this item to determine if a significant relationship existed between patient satisfaction and the patient's perceived morbidity (see Appendix B for the revised general respondent data section of the subject questionnaire).

3. Patient satisfaction data. Kane (1981) criticized many past satisfaction surveys because of the coarseness of the scales on which investigators relied. A satisfied versus dissatisfied scale is too coarse to measure differences between groups of patients. When researchers use a dichotomous scale they divide respondents into only two groups. Common sense suggests persons within each group differ to an important extent in terms of their satisfaction.

Patients (users) may be satisfied or dissatisfied with medical care for different reasons. Assessing patient

satisfaction with a valid and reliable multidimensional index allow a researcher to place individuals along a continuum in terms of their sentiments about health and medical care services.

I based the design of the Patient Satisfaction Index on research by Balke et al. (1979) and Ware et al. (1978). Balke et al. (1979) assessed satisfaction with health care using the following three dimensions (domains) of satisfaction: (a) professional competence of health care providers, (b) personal qualities of health care providers, and (c) cost/convenience of the care encounter. Ware et al. (1978) identified five major dimensions of patient satisfaction: (a) quality of care, (b) accessibility/convenience, (c) finances, (d) physical environment, and (e) availability. Subdimensions of the quality-of-care dimension include the art of care, technical aspects of care, and outcomes of care.

I constructed Patient Satisfaction Index items with a Likert scale format. To score respondents' ratings, I coded items in the same direction with a high score indicating satisfaction and a low score, dissatisfaction. I totaled item scores to calculate the scale total or Patient Satisfaction Index. This multidimensional index allowed patients to be placed along a continuum of attitudes concerning satisfaction with health care and services.

Respondent-reported subjective data provided a means of assessing and summarizing patient satisfaction with health care received. Respondents reported their satisfaction with health care by rating 10 neutral statements.

Items/statements 1 - 3 related to patients' perceptions of their personal relationship (PR domain) with health care providers. Items/statements 4 - 6 referred to patients' perceptions of professional competence (PC domain) of health care providers. Items/statements 7 - 9 described patients' appraisals concerning cost and convenience (CC domain) of student health service care including waiting time associated with using the service. Item/statement 10 was a general rating of patients' satisfaction with the physical environment within the facility. Based on the results of previous satisfaction surveys in the subject student health service, I included this item in the CC domain to see whether it related to overall satisfaction with care provided as determined by the Patient Satisfaction Index.

This section of the questionnaire was designed in a fixed response/grid questionnaire format. Bailey (1982) identified several advantages of using this questionnaire grid format. This format allowed respondents to rate the 10 items by checking the appropriate level of their satisfaction using the following scales: very satisfied (index value = 5), satisfied (index value = 4), neutral (index value = 3), dissatisfied (index value = 2), very dissatisfied (index value = 1), and unable to answer.

I excluded from analyses for questionnaire containing the usable-to-answer response choice for any of the 18 items a large number of usable-to-answer responses on any item in this section of the questionnaire would indicate a problem with that item.

I added the index values for the responses to the 18 items in this section in order to form the Patient Satisfaction Index, a numerical value determining patient satisfaction with a health care encounter. I grouped health service users by the categorizing items contained in the general respondent data section of the questionnaire. This grouping of student users provided group mean indices. A comparison of these mean group indices might reflect differences in patient satisfaction for specific groups of users.

Even though I realized that respondents' ratings of the statements in this section of the questionnaire may produce positively skewed results, I decided to use neutral statements in order to elicit the most unbiased responses possible from survey participants. According to Tuckman (1979, pp. 138-139), positive and negative statements may cause a respondent to become cautious and to give less-than-honest answers. In attitude measurement, neutral statements or questions may lead to the desired information by causing respondents less alarm.

The first patient satisfaction data-collection cycle using the revised patient satisfaction data section

(producing the Patient Satisfaction Index) of the questionnaire was represented by the subject study. If this data collection yielded Patient Satisfaction Indices that were overly skewed in a positive direction (reducing the variability of respondents' answers), recommendations to address this problem in future data-collection cycles based on recommendations of Bailey (1982) will be included in Chapter V.

4. Comments/suggestions for improvement: This open-ended section of the questionnaire allowed respondents to (a) clarify and qualify responses, (b) comment on an issue or specific problem not addressed in the questionnaire, and (c) offer suggestions for improving health care provision at the subject health service. This section of the instrument also served as a check for the validity of the Patient Satisfaction Index.

The revised questionnaire was reviewed by the director and members of the quality assurance committee of the subject health service. This review board discussed and decided that (a) the questionnaire contained no sensitive questions, (b) the data collection methods ensured confidentiality of responses, and (c) involved no invasive techniques. Therefore, review by the Committee on Human Subjects Research of the subject institution was not warranted.

The two-sided, 8 1/2 by 11 inch questionnaire was printed on both sides on bright yellow paper stock according to the recommendations of Denlap (1989). Questionnaires were



folded lengthwise so that the cover letter appeared horizontally on the top surface of the folded questionnaire. The instrument was folded so that the general responses and patient satisfaction data sections of the questionnaire appeared on the inside two surfaces. Questionnaires were folded and placed on clipboards when given to respondents to further suggest the confidentiality of participants' responses. The back page of the questionnaire contained the open-ended, comments section of the instrument.

The follow-up questionnaire was identical to the one described above with the exception of the color (blue) of paper on which it was printed. The color of the two forms was different to facilitate handling of completed surveys.

#### Pilot Testing of the 1994 Questionnaire

Before administering the questionnaire, I conducted a pilot test of the initial revised instrument with 10 students who had used the subject student health service during the preceding 3 months. I asked each respondent to complete the questionnaire based on that person's most recent visit to the subject facility. Immediately following completion of the questionnaire by the respondent, I interviewed that person to determine (a) problems experienced in completing the questionnaire, (b) whether any aspects of satisfaction with health care received were not covered by the questionnaire, and (c) the respondent's general impressions of the questionnaire.

During this pretesting of the instrument, I determined that students were hesitant to complete a survey instrument that appeared long and time consuming to fill out. With this consideration in mind, I reorganized the patient satisfaction data section of the questionnaire into a boxed response/grid format. This format constituted an efficient use of space and ease and speed of completing questionnaires. When I used a single response scale, one set of instructions applied to all 10 items in this section. Statements such as those used in this questionnaire section would elicit unbiased responses from those completing the survey questionnaire.

As a result of this pretesting of the instrument, I made the following changes before performing a second pretesting: 1) clarified directions for completing the questionnaire, 2) added an appeal to appear response choice to several items, and 3) adopted the boxed response/grid questionnaire format for the patient satisfaction data section, giving the questionnaire the appearance of being shorter and easier and quicker to complete.

In a second pilot effort, I administered the second revision of the questionnaire to 10 other students who had used the subject health service during the preceding 3 months. No additional problems with the questionnaire surfaced at that time.

Initial Administration of the 1994 Questionnaire

With the help of questionnaire administration personnel, I administered the 1994 Patient Satisfaction Questionnaire March 29 - 30, 1994. Questionnaire administration personnel were employees of the subject facility from the Quality Assurance and Health Education divisions and student volunteer members of the Student Health Outreach Team. I also participated in the data collection to monitor procedures and insure that disruptions of health care provision was minimized. In a weekly, inter-facility memorandum distributed on March 28, 1994, the staff of the subject facility was reminded that data collection would be on March 29, 1994.

Users of the student health service received questionnaires from questionnaire administration personnel after their health care encounters but before leaving the facility. Questionnaire administration personnel, with a supply of questionnaires and equipped with clipboards and pencils for the convenience of respondents, stationed themselves at exits to the student health services.

Ordinarily, patients have access to four exits: the main entrance, the mental health (inside) exit, the laboratory (downstairs) exit, and the pharmacy (inside) exit. During the 1-day data collection period, steel construction necessitated closing the laboratory exit. Additionally, on observing the exits before the data collection period, I realized that

few users left via the mental health exit. Thus, I had questionnaire administration personnel stationed themselves at the front and pharmacy (counsel) exits.

In training questionnaire administration personnel, I (a) gave a 15-minute oral briefing on procedures to be followed to reduce the chances of their leading responses and (b) gave them written instructions describing the procedures they were to follow. I encouraged them to seek as many completed questionnaires as possible while avoiding influencing the responses of users.

In the written instructions I asked questionnaire administration personnel (a) to collect as many completed questionnaires as possible without disrupting student health service activities, and (b) to ask if each user would be willing to complete the second, follow-up, mailed questionnaire (see Appendix C).

#### Sample Population of the Initial Administration of the 1991 Questionnaire

The population sampling frame for this study included all of those users who visited student health services during the year of this data collection cycle. Since surveying the total population was not feasible, I chose a smaller target population—users who visited the student health service during a 3-day period. The time period for data collection was assumed to be representative of typical

student health service usage during non-peak periods, selected in part to minimize disruptions within the facility during questionnaire administration.

Investigators studying patient satisfaction in the natural setting must be careful not to jeopardize health care delivery services during data collection. For this reason, I chose a time period during the academic semester between midterm examinations and examinations given at the end of the academic year. I avoided the examination periods because student health service usage is usually at its highest at these times. In an already over-scheduled facility, any additional activity during peak-use periods may interfere with the delivery of health care services.

Monday and Friday are generally the busiest days at this facility in terms of patients seen by health care providers. Tuesdays, Wednesdays and Thursdays are slightly less busy. I selected Wednesday, Thursday, and Friday as days representative of typical non-peak usage at the subject student health service facility.

To create the sample for this study, I surveyed as many users as possible who visited the student health service during the 3-day data collection period. The goal for surveying patients was to exceed the percentages of patients who completed satisfaction surveys in that student health service in the preceding data collection cycles (see Table 1).

My decision to retain the nonprobability sampling procedures established in previous satisfaction studies in the subject facility was supported by Bailey (1980) in that my interest was in perfecting the questionnaire during this data-collection cycle. I address improvement of sampling techniques in future replications of this study in the recommendations section of Chapter 9.

### Selection of Follow-up Participants

The follow-up administration of the 1984 Patient Satisfaction Questionnaire was accomplished within the 2- to 4-week time period recommended by Sussall (1978).

When users returned completed surveys to questionnaire administration personnel, they were asked to participate in the follow-up administration of the Patient Satisfaction Questionnaire. Users were not aware that the follow-up instrument would be identical to the initial one in form and content. While an individual who agreed to participate in the follow-up evaluation addressed an envelope to himself or herself for mailing the form, the survey staff member administering the questionnaire (a) coded the follow-up form with the same number as that coded on the original form and (b) recorded the respondent's first name, phone number, and questionnaire code number on a telephone follow-up code sheet (see Appendix G). In this way, we could match the two forms completed by each participant and if needed, make a follow-up telephone call

to nonrespondents while maintaining no record of the respondent's name and address. Respondents were informed verbally by questionnaire administration personnel that the telephone follow-up code sheet would be destroyed at the end of the semester. This procedure maintained the confidentiality of responses.

According to the questionnaire administration personnel, the most common reasons users declined to participate in the follow-up study was a shortage of time. I instructed questionnaire administration personnel to ask as many of those completing the principal survey as possible to participate in the follow-up survey. Problems inherent in collecting data in the natural setting precluded survey personnel from asking all initial respondents to participate in the follow-up study. Questionnaire administration staff decided which of those completing the original survey they would ask to complete the second instrument.

#### Administration of the Follow-up Questionnaire

I mailed the questionnaires with a cover letter (see Appendix E) to participants in the envelopes users had addressed to themselves. In the same envelope, participants received a cover letter, the questionnaire, and a postage-paid return envelope printed with the address of the student health service. The intent was that the ease of completing the instrument would increase the return rate of the

follow-up questionnaires. I mailed the follow-up questionnaires bulk-rate 18 days after the initial questionnaire administration period.

To comply with the request of the financial administrator of the subject student health services, I used a bulk-rate mail permit to administer the follow-up surveys. This was not my method of choice based on the literature review of others conducting mailed surveys of patient satisfaction. The postage-paid envelopes for participants to use in returning the completed questionnaires were printed with a bulk-rate permit number.

The postal service does not return undeliverable mail sent under a non-profit bulk-rate mailing permit. For this reason, I could be unsure whether the participants actually received the follow-up questionnaire or merely failed to complete and return it. Another anticipated problem in using the bulk-rate mailing permit was the additional time required by slow-moving mail. Participants could receive the follow-up surveys too close to the end of the term and the beginning of final examinations--a factor that could interfere with the follow-up return rate.

The use of the bulk-rate mail permit underscored more than I could have anticipated with the follow-up return rate. Due to an error of the campus postal service, the printing department of the subject university was



given an incorrect bulk-rate permit number, resulting in the printing of the envelopes with an incorrect bulk-rate permit number for return of the follow-up surveys. The campus postal system uses only the bulk-rate permit number for sorting mail arriving at the subject institution. Consequently, the majority of returned surveys were delivered to the Continuing Education Division of the subject university, which is located off the campus proper. Even though representatives of the Continuing Education Division were most cooperative about receiving and delivering the misplaced returned questionnaires, I had no way of determining whether some surveys had been lost in the confusion. This situation will be addressed in the recommendations section of Chapter V.

### Research Design

Campbell and Stanley (1963) described a research design for field investigators in which the researcher begins with an inadequate design and then adds specific features to control for one or another of the numerous sources of invalidity. The Recurrent Institutional Cycle Design is appropriate to those situations in which a given aspect of an institutional process is, on some cyclical schedule, continually being presented to a new group of respondents. Such situations include higher education institutions and their health care facilities.

According to Campbell and Stanley (1963), if in these situations one is interested in evaluating the effects of a global and complex construct (such as patient satisfaction), then the Recurrent Institutional Cycle design probably offers at best an answer as is available from the research designs that have been developed thus far.

In the subject student health service, previous patient satisfaction researchers used the One-Shot Case Study pre-experimental design. This weak research design has inherent sources of internal invalidity. The primary focus of this research was to assess the reliability and validity of the measurement instrument (the Patient Satisfaction Questionnaire developed for use in this research project). A second effort to strengthen the design of the study and reduce threats to internal validity was the addition of a second pre-experimental design to the one previously used. The One-Group Pretest and Posttest design added controls for maturation and selection. According to Campbell and Stanley (1963), the combination of two weak (adequate) designs may have considerable strength.

The Recurrent Institutional Cycle design (Campbell & Stanley, 1963) as used in this study can be diagrammed as follows:

$$\begin{array}{ccccccc} & X_1 & & Q_1 & & & \\ \text{Experimental group} & = & & = & & = & \\ & X_1 & & Q_1 & & X_2 & Q_2 \end{array}$$

where:

$X_1$  represents a student health service health care encounter;

$Q_1$  represents the administration of the 1964 survey immediately after health care provision;

$X_2$  represents the passage of time allowing for retention to determine if satisfaction of the outcomes of the health care encounter have an effect on patients' ratings of their satisfaction with the health care they receive at student health services; and

$Q_2$  represents a second administration of the questionnaire to a subgroup of those completing the principal administration of the questionnaire at a later date and in a location away from the institutional setting of the student health services health care facility.

The questionnaire administrations represented by  $Q_1$  and  $Q_2$  was accomplished with the same instrument with the exception of the color of paper on which it was printed. The study group for the second administration of the questionnaire was a subgroup of those users completing the principal administration of the survey.

### Data Analysis

I used the following procedures to test the four null hypotheses relating to the primary purpose of this study.

#### Validity of the 1988 Patient Satisfaction Questionnaire

Cronbach and Silver (1979, p. 17) defined validity as the extent to which any assessment instrument measures what it is intended to measure. These authors went on to write that to generate usable data, one must validate a measuring instrument in relation to the purpose for which it was designed (Cronbach & Silver, 1979, p. 17).

To pass the test of content validity, a comprehensive patient satisfaction survey must include items representing all pertinent satisfaction dimensions and subdimensions. Ware (1981) recommended three procedures for assessing the validity of a satisfaction questionnaire constructed to meet the individual information needs of specific health care facility administrators. These recommended procedures are described below:

1. Design a patient satisfaction index based on a listing of satisfaction as tested and validated by previous researchers.
  2. Include an open-ended item on the questionnaire as item that asks respondents for further comments about their health care experience (refer to hypothesis 3).
- Multiple respondent comments on some aspect of the health care encounter highlight problem areas within a survey

instrument. Responses to the open-ended items alert researchers to important satisfaction dimensions that were either omitted or not clearly or adequately addressed by patient satisfaction data items. If the items forming the Patient Satisfaction Index or scale adequately describe satisfaction, comments will focus on (a) specific instances of care for specific individuals or (b) respondents' amplification of responses to items comprising the satisfaction scale.

3. Conduct an item-analysis to study the interrelationships among (a) the 12 items in the Patient Satisfaction Index or scale and the index itself (refer to hypothesis H<sub>1</sub>), and (b) conduct a factor analysis to study the interrelationships among each domain and the Patient Satisfaction Index (refer to hypothesis H<sub>2</sub>).

In using these methods the investigator makes the assumption that each item within a domain contains a substantial amount of information about respondents' satisfaction with health care encounters as well as information about the particular domain itself. The researcher can test this assumption by correlating each item with the Patient Satisfaction Index. Using this test of item homogeneity (hypothesis H<sub>3</sub>), items that belong to the scale will correlate substantially ( $p \leq .001$ ) ( $r \geq .401$ ) with each other and with the Patient Satisfaction Index. This test can also be used to assess the homogeneity of the domains included in the Patient Satisfaction Index.

Hypothesis 1), to be included in the Patient Satisfaction Index scale, each domain should also correlate substantially ( $p \leq .0001$ ) with the Patient Satisfaction Index.

In addition to testing for item and domain homogeneity, the investigator should evaluate the correlations between each item within a domain and the other items on the scale (refer to hypothesis 2). This test of discriminant validity assesses whether the item measures the hypothesized domain of satisfaction more than the other domains on the scale. Intercorrelations of items within a domain should be greater than the intercorrelations of items between domains. If this situation does not occur, an item representing significant information about patient satisfaction may be placed in an inappropriate domain.

I used three three procedures suggested by Nunn (1981) for assessing content validity of the Patient Satisfaction Questionnaire I developed for use in this study.

#### Reliability of the 1994 Patient Satisfaction Questionnaire

Reliability of a measure instrument concerns the degree to which results are consistent across repeated measurements (Cronbach & Grier, 1979, pp. 15-16).

I used the follow-up administration of the questionnaire to test null hypothesis 3. I hypothesized that no significant difference (using a 95% level of confidence) would occur in the mean index value of users surveyed immediately after the health care encounter and the mean index value of those

same users participating in the follow-up study surveyed by mail 2 to 4 weeks later. This procedure allowed respondents to evaluate the outcomes of their health care encounters before responding to the same items a second time. To answer this research question, I used a test-retest measure of validity as recommended by Carman and Heller (1993, pp. 17-40).

Burke (1994) described the college population as one operating on a low level of need for health care services. For this reason, I assumed that the average satisfaction index of a population seeking health care and services for health problems that are frequently self-limiting or not perceived as being life-threatening, would be relatively stable over time, thus demonstrating the reliability of the instrument.

### Research Questions

To answer the first research question (Will the mean Patient Satisfaction Index values differ significantly when users are surveyed immediately after the health care encounter and when the same users are questioned by mail 2 to 4 weeks later?), I used a one-way analysis of regression procedure to determine if a significant difference existed in the mean Patient Satisfaction Index of a subgroup of the population who completed the principal administration of the questionnaire and that same subgroup of the population who returned the follow-up questionnaire.

To test the 18 null hypotheses contained within the second research question (Would mean scores for user satisfaction with the subject student health service, as measured by the Patient Satisfaction Index, differ significantly, using a 95% confidence level, when respondents were categorized by the 18 grouping variables [multiple response-choice items] contained in the respondent-reported data section of the questionnaire?), I used a 18-factor analysis of variance regression procedure.

I used a 18-factor analysis procedure rather than 18 separate one-way analyses for three reasons (Bach, Gornau, & Bussell, 1974, p. 340): (a) the single, 18-way analysis of variance regression procedure is more parsimonious (that is, it answered the same questions more quickly and with less computational), (b) the single analysis procedure is more sensitive to differences among the groups being compared, and (c) with the single analysis procedure one can investigate the effects of several interactions of interest between independent variables. Interaction is the effect on the dependent variable (the Patient Satisfaction Index in this study) of two or more independent variables (the grouping variables in this study) operating together.

A disadvantage of using a single, 18-way analysis of variance regression procedure was the number of possible interactions that result. Finding limitations for analyses was the recommendation of Cook et al. (1974, pp. 18-22) on multivariate analysis precluded my decision to examine only



three first-order interactions of interest to this study. Since the literature contains evidence that (a) satisfaction with health care is a multidimensional concept and (b) each of the items in the respondent-reported data section of the questionnaire has been shown to be related to satisfaction, the intent of this analysis procedure was to estimate the main effects of the 10 general respondent data items included in the questionnaire.

Using this procedure, each question contained in the general respondent data section of the questionnaire became a grouping variable. I formed comparison groups for each item based on the users' response choices for that particular item. Because of the large number (604 individuals) of users surveyed, I assumed subgroups of respondents would exhibit normal distributions of responses. Subgroups of items were adequate to detect differences in respondents' reactions to items contained in this questionnaire section Bailey (1988, pp. 104-121) supported this assumption.

The analysis procedure used determined if significant differences existed between any of the groups formed for each of the nine comparisons. I used the Scheffé procedure to determine where significant differences were within the groups formed for each respondent-reported data section item.

This data analysis methodology was planned and executed with the assistance of a biostatistician from the Southeast Regional Data Center of the project university. Data analysis and findings are presented in the following chapters.

## CHAPTER IV PRESENTATION OF RESULTS

The primary purpose of this study was (a) to develop an instrument based on a review of the instrument administrations during the previous 4 years in the subject student health service, with which to assess user satisfaction with health care provided by a university health service, (b) to assess the validity and reliability of the instrument, (c) to test the instrument through the collection of data at time of service delivery and at a later time, and (d) to compare the level of user satisfaction at time of service delivery and at a later time.

The secondary purpose of this study was (a) to group and compare survey participants by their self-reported responses to questions contained in the respondent-reported data sections of the questionnaire, (b) to compare these groups and their mean levels of satisfaction with the subject health service as measured by the Patient Satisfaction Index, and (c) to provide administrators of the facility with data organized to reflect differences in the satisfaction of groups of users categorized by their self-reported characteristics in order to identify problem areas in providing student health care in that institution.

I used a simple analysis of variance regression procedure to assess the reliability of the 1994 Patient Satisfaction Questionnaire. The Patient Satisfaction Index served as the dependent variable to answer the first research question. Will the mean Patient Satisfaction Index values differ significantly (using a 95% level of confidence) when users are surveyed immediately after the health care encounter and when the same users are questioned by mail 2 to 4 weeks later?

I used a multiple regression analysis of variance procedure to answer the 18 subquestions contained within the second research question. Would mean scores for user satisfaction with the subject student health service, as measured by the Patient Satisfaction Index, differ significantly (using a 95% confidence level) when respondents were categorized by the 18 grouping variables (multiple response-choice items) contained in the respondent-reported data section of the questionnaire? The Patient Satisfaction Index again served as the dependent variable while the 18 grouping variables served as independent variables for this analysis.

This chapter contains the following sections: validity and reliability assessments of the 1994 Patient Satisfaction Questionnaire, the results of the analysis procedure used to answer the first research question, and the results of the analysis procedure used to answer the 18 subquestions contained within the second research question.

The 1988 Patient Satisfaction Survey  
Study Group

Before reporting the findings of the subject study, an examination of the study group used is in order.

According to Bailey (1982, p. 87), investigators using nonprobability sampling procedures cannot claim that the sample was representative of the larger population (the sampling frame) because the probability that an individual was included in the sample was unknown. Even though I was more interested in perfecting the subject questionnaire than in the sample used in this study, the representativeness of the study group was of interest to administrators of the subject facility. These administrators would use the satisfaction data generated to identify problematic aspects of using the subject facility, staff, and services for meeting health care needs of student nurses.

Since sampling techniques will be an issue in subsequent patient satisfaction data-collection cycles in the subject facility, a closer look at the study group used in this study provided valuable information for making recommendations for subsequent studies in the subject health service. I used four assessments to examine the study group. They are described below.

1) An examination of the distribution of Patient Satisfaction Indexes for the initial administration of the Patient Satisfaction Questionnaire that occurred in March, 1984. This assessment was conducted to determine

the normality of the distribution of indices of the 104 of 108 questionnaire respondents who completed the entire questionnaire. Even though I expected some degree of positive skewing for the distribution (resulting from the use of ordinal statements in the primary satisfaction/dissatisfaction items), I had made the assumption that the distribution would be somewhat normal in order to use analysis of variance regression procedures (see Figure 1).

2. A comparison of the number of (a) annual average daily visits to the subject facility during the 1983-84 fiscal year; (b) the monthly average daily visits for March, 1984; and (c) the actual number of visits during the March, 1984 data-collection period (see Table 2).

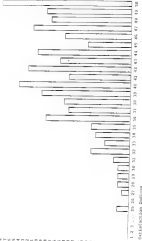
3. A comparison of the average (a) 1983-84 annual, (b) March, 1984 monthly, and (c) March 28-30, 1984 data collection period (self-reported by respondents who participated in the study) percentages of patients seen by physicians (PMs), physician's assistants (PAs), nurse practitioners (NPs), and registered nurses (RNs).

4. A comparison of percentages of those responding to the questionnaire during the 3-day survey period to the entire population of the subject university (as classified by the Registrar of the subject university) when the study group was divided into university classifications by respondents' self-reported answers to the question, What is your university classification?

The first assessment of the study group is demonstrated in Figure 1. Even though the bar graph shows a positive skewing of indices, the distribution is somewhat normal with the exception of the index range from 47-55. This extreme positive skewing of the distribution of indices for those respondents who were very satisfied with their experiences at the subject student health facility is not surprising when one considers (a) the discussion in Chapter I of cognitive dissonance, (b) the discussion of Yers's work (1978) in Chapter II on equivalence responses etc., and (c) the fact that this study assessed the levels of satisfaction and dissatisfaction for users of the subject student health service only. During the data-collection cycle of this study, no attempt was made to determine if barriers to access and usage existed for some of the members of the total subject-university population. Those who visited the subject facility in the past and had negative experiences there, may have turned to other sources of health care and services. Usage and access considerations for nonusers of the subject student health service will be addressed in future patient satisfaction data-collection cycles.

The second experience assessment of the study group is shown in Table 2. This table supports the assumption that the 3 days chosen for data collection were typical non-peak usage days for the subject student health service

20  
15  
10  
5  
0  
-5  
-10  
-15  
-20  
-25  
-30  
-35  
-40  
-45  
-50  
-55  
-60  
-65  
-70  
-75  
-80  
-85  
-90  
-95  
-100



Patient Satisfaction Scores

Figure 1

Distribution of  
Patient Satisfaction Scores  
for the month of June 2004

As expected, usage was greater on Friday than on Wednesday or Thursday.

Table 2  
A Comparison of  
Average Student Health Service Visits

Time Period		Average Visits During Regular Operating Hours <sup>a</sup>
<hr/>		
Fiscal Year 1983-84		
Annual Average Visits		294
<hr/>		
March, 1984		
Monthly Average Visits		304
<hr/>		
March 24, 1984 (Wednesday)	204	
March 25, 1984 (Thursday)	201	
March 30, 1984 (Friday)	327	
Daily Average Visits During Study Period		294
		327
<hr/>		
Note: <sup>a</sup> represents Monday - Friday, 8:00 a.m. - 4:00 p.m.		
<hr/>		

Table 2 relates to the third assessment of the subject study group. Information contained in this table is confounded by two factors: (a) the frequent changes in the number and composition of staffing in the subject student health service facility, and (b) the realization that many respondents were not aware of the medical title of the health care professional providing services to them at the subject facility. Due to the frequency of questions asked by survey respondents, questionnaire administration personnel agreed that respondents did not appear to have the knowledge to answer this question.



The second sector (B) score was further compounded by the fact that only 4.7% of respondents selected the response choice, unable to answer when asked, by which health care providers were you seen? The questionable nature of the information in this table supported the need for improved sampling techniques in future satisfaction data-collection cycles in the subject student health service.

Table 1  
Percentage of Visitors Seen by  
Missed Health Care Providers at  
Student Health Service

Time Period	Percent of Visitors Seen By*			
	MDs	PAs	NPs	Sts
Fiscal Year 1993-94 Annual Figures	33.9	13.5	40.9	40.6
March 1994 Monthly Figures	38.4	12.8	41.8	48.2
March 28-30, 1994** Survey Period Figures	42.3	23.7	32.4	37.1
Notes: * reflects users seen by care that was health care provided during the subject visit.				
** represents self-reported data from respondents				
Source: Monthly Statistical Reports of the subject Student Health Service				

The fourth assessment of the study group is demonstrated in Table 4. In this assessment, the study group used in this study was compared to the total population of the subject university in terms of university classifications

In this comparison as well as the two preceding, even though no conclusion can be drawn, information in this table suggested that the study group was representative of the total population of the subject university, at least in terms of university classifications of respondents.

Table 4  
University Population/Study Group  
Comparison by University Classification

Classification	University Population Spring, 1964		Study Group March, 1964	
	Enrolled Students	Percent	Respondents	Percent
Freshmen	5091	14.43	54	13.8
Sophomores	5191	15.48	121	14.8
Juniors	8074	28.44	211	28.2
Seniors	7184	26.19	151	28.8
Graduates	4390	15.84	384	19.2
Other	*	*	12	4.9
Total	33334	100.00	602	100.0

Note: \* represents that a comparable figure could not be determined from available data.

Source: Office of the Registrar of the subject university on registration for spring term, 1964.

MEANS of random selection, an estimation of the follow-up-study subgroup is also in order at this point. In table 5, a comparison is made between the original study group and the follow-up study subgroup on responses

to select respondent-reported *Self* (and all valid) Subjective Questionnaire.

Table 1

A Comparison of the  
Study Group and the Follow-up Study Subgroup  
on Selected Responses to the 2014 Questionnaire

Survey Item Response Choice	% of Original Study Group Respondents	% of Follow-up Study Subgroup Respondents
<b>What is your university classification?</b>		
Freshman	14.8	14.0
Sophomore	14.0	13.0
Junior	21.7	18.0
Senior	27.8	22.0
Graduate	13.3	15.0
Other	4.2	3.0
<b>How many times have you been seen by a health care provider at Student Health Service?</b>		
First Visit	10.1	8.0
Second Visit	14.1	8.0
3 or More Visits	61.0	67.0
Visit Regularly	14.8	18.8
<b>Are you aware of the appointment system at Student Health Service?</b>		
Aware	84.7	84.9
Unaware	15.3	15.1
<b>During this visit, how long did you wait to see a health care provider at Student Health Service?</b>		
Less Than 15 Minutes	31.7	36.4
15-30 Minutes	33.3	31.8
30-60 Minutes	23.8	18.2
Over 60 Minutes	2.1	3.0

On reviewing these compared responses, the only major difference between groups appeared to be on waiting time to

see a health care professional. On the basis of the review of literature in Chapter II, one might expect the mean level of satisfaction to be lower for the follow-up subgroup because of the longer waiting times to see a health care provider for a larger percentage of respondents in this subgroup.

#### Validity and Reliability of the 1988 Patient Satisfaction Questionnaire

I used three procedures suggested by Ware (1981b) for assessing construct validity of the Patient Satisfaction Questionnaire developed for use in one student health facility.

Procedure 1 Ware (1981b) recommended that design of a patient satisfaction index be based on a taxonomy of satisfactions tested and validated by previous research efforts. Design of the subject Patient Satisfaction Index was based on the domains of satisfaction as defined in the research of Wilks et al. (1978) and Ware et al. (1974).

Wilks et al. (1978) assessed satisfaction with health care using the following three dimensions of satisfaction, (a) professional competence of the health care provider, (b) personal qualities of the health care provider, and (c) cost/convenience of the health care encounter. Ware et al. (1974) identified five major dimensions of patient satisfaction: (a) quality of care, (b) accessibility/convenience, (c) finances, (d) physical environment, and

1a) availability. Subdimensions of the quality of care dimension included the art of care, technical aspects of care, and outcomes of care. According to Ware (1981), the purpose of the questionnaire and the intended use of data collected determine which domains of satisfaction to include in the questionnaire. In this study, I assessed user satisfaction with the subject student health services and not usage. I did not emphasize the accessibility and availability of services domains in the questionnaire (see Appendix A for the complete questionnaire) nor did I attempt to survey concerns of the subject student health faculty.

Procedure 3. Ware (1981) recommended the inclusion of an open-ended item on the questionnaire that asked respondents for further comments about their health care encounter. Responses to the open-ended item alert researchers to important satisfaction dimensions that were either omitted or not clearly or adequately addressed in the patient satisfaction data section items. This open-ended item also provided respondents an opportunity to single out aspects of satisfaction with health care about which they felt most strongly.

Following the recommendations of Ware (1981), I included an open-ended item on the questionnaire. I sorted, grouped, and analyzed responses to this open-ended item to assess the validity of the domains included in the revised 1984 questionnaire (see Appendix F for a

complete list of responses to this item). This analysis was performed to test hypothesis 2. Open-ended responses to the open-ended, comments item on the questionnaire will not identify important aspects of satisfaction that were either (a) omitted or (b) not clearly or adequately addressed by the patient satisfaction data items included in the Patient Satisfaction Index. A numerical summary of patient satisfaction

Of the 444 questionnaires completed during the initial data-collection period (March 28-30, 1981), 124 respondents included comments/suggestions for improvement on the open-ended item. To facilitate analysis, I grouped responses to this item as follows: (a) issues concerning access, such as cost, convenience, making appointments, waiting time, and insurance issues (34 comments); (b) issues concerning quality of care/staff, such as sensitivity, medical competence, staffing, and comments on specific clinics or services (28 comments); (c) issues concerning the student health facility and environment (17 comments); and (d) suggestions for improving the student health service (14 comments). Some individual respondents made comments in several of the categories identified above.

The comments/suggestions represented individual opinion. Some comments reflected a lack of awareness of health care services in general. Others reflected a lack of awareness of procedures and services provided at the facility. Comments about dissatisfaction with quality of care and staff related to specific instances of care

and were undoubtedly colored by influences other than what was reported in these brief patient statements.

With the exception of comments on factors affecting use of the student health service, responses to this open-ended item supported the validity of satisfaction used in the patient satisfaction data section of the questionnaire. Comments did focus on specific aspects of responses to items comprising the patient satisfaction data section of the questionnaire.

The numerous responses (34) relating to use of the student health service confirmed the need to address user satisfaction as well as usage of the facility in the next patient satisfaction data-collection cycle. But even among these respondent comments, none related to aspects of satisfaction that were not included in either the respondent-reported data or patient satisfaction data sections of the questionnaire.

On the basis of this analysis, I accepted the null hypothesis 3 and concluded that this open-ended section of the questionnaire strongly supported the validity of the 1984 Patient Satisfaction Questionnaire.

Paragraph 2: I followed the recommendations of Borg (1981) that satisfaction researchers conduct an intercorrelational empirical study of interrelationships among (a) the specific items within the Patient Satisfaction Index and the index itself and (b) the selected domains of satisfaction and the satisfaction index (examining three domains of patient satisfaction

In using this method, I assumed that each item within a domain contained a substantial amount of information about respondents' satisfaction with health care encounters as the subject health care facility as well as information about the particular domain itself. I tested this assumption by conducting each item with the Index Hypothesis 11. Using this test for item homogeneity, items that belonged to the satisfaction scale should correlate substantially ( $r = .48$ ,  $p < .05$ ) with each other and with the Patient Satisfaction Index. Results of this test for item homogeneity are included in Table 4. I included responses from users completing all items in the patient satisfaction data section of the questionnaire in this analysis.

Table 4 demonstrates that each of the 18 items included in the patient satisfaction data section correlated significantly ( $p < .05$ ) with the index with a correlation coefficient greater than .48. The intercorrelations between items 1 - 4 (78 and 80 domain) also correlated significantly ( $p < .05$ ) with each other, yielding correlation coefficients greater than .48. Even though items 1 - 16 (60 domain) of the patient satisfaction index did correlate significantly with the Index, these items failed to correlate significantly with items 1 - 4. The results of this correlation matrix raised questions about the validity of the countermeasures domain of the patient satisfaction data section of this questionnaire.



Table 6

Enter-Dose and Enter-Dose Correlation Coefficients (Rho) for Patients, San Rafael, Basu Group 1-12

Dose	1	2	3	4	5	6	7	8	9	10	11	12
1	1.000	.428	.475	.558	.463	.581	.461	.511	.445	.444	.461	.461
2	.428	1.000	.452	.515	.518	.471	.551	.568	.571	.574	.552	.552
3	.475	.452	1.000	.438	.492	.458	.478	.482	.528	.528	.528	.528
4	.558	.515	.438	1.000	.438	.438	.438	.438	.438	.438	.438	.438
5	.463	.518	.458	.438	1.000	.438	.438	.438	.438	.438	.438	.438
6	.581	.471	.478	.438	.438	1.000	.438	.438	.438	.438	.438	.438
7	.461	.551	.478	.438	.438	.438	1.000	.438	.438	.438	.438	.438
8	.511	.568	.482	.438	.438	.438	.438	1.000	.438	.438	.438	.438
9	.445	.574	.528	.438	.438	.438	.438	.438	1.000	.438	.438	.438
10	.444	.571	.528	.438	.438	.438	.438	.438	.438	1.000	.438	.438
11	.461	.552	.528	.438	.438	.438	.438	.438	.438	.438	1.000	.438
12	.461	.552	.528	.438	.438	.438	.438	.438	.438	.438	.438	1.000

Note:  $p = .0001$  for each correlation coefficient in this matrix (d.f. = 11).

A two-way factor analysis to assess the homogeneity of the domains included in the patient satisfaction data section of the questionnaire. Each domain of satisfaction should also correlate significantly with the index to be included in a patient satisfaction measurement scale (Hypothesis C). The correlation matrix for this test of domain homogeneity is included in Table 7.

Table 7  
Correlation Coefficients Matrix for  
the Domains of Satisfaction and the Index

	FE	FC	CC	Index
FE	1.00000	0.74300	0.40154	0.80330
FC	0.74300	1.00000	0.44074	0.83330
CC	0.40150	0.44074	1.00000	0.80030
Index	0.80330	0.83330	0.80030	1.00000

Note:  $p = .001$  for each correlation coefficient in the matrix

The correlation matrix in Table 7 supports the validity of the domains of satisfaction forming the patient satisfaction data section of the questionnaire. Each domain correlated significantly with the index ( $r = .40, p = .001$ ) in further support of the validity of the questionnaire. The correlation between each domain and the index was stronger than the correlation between the same domain and each of the remaining two domains (Hypothesis C). The

correlation matrix in Table 7 demonstrated that each of the three domains of satisfaction included in the patient satisfaction data section of the questionnaire was strongly associated with satisfaction yet each measured a distinct aspect of the construct, satisfaction.

Research question 1 related to the reliability of the 1994 Patient Satisfaction Questionnaire. The mean index value of a subject of the population who completed the questionnaire at the initial administration was compared to the mean index value of that same subset of respondents completing the questionnaire from 2 to 4 weeks later (Hypothesis H<sub>1</sub>). Only responses from those users completing the entire set of items in the patient satisfaction data section of the questionnaire were included in this analysis.

The one-way analysis of variance procedure I used to determine if the difference between the two groups was significant (test, robust validity), produced an  $F$  value of 1.55 with  $p = .2188$ . Even though the mean of the initial questionnaire administration group was 43.91 and the mean of the follow-up questionnaire administration group was 40.485, this difference was not significant at  $p < .05$ . This analysis led to the conclusion that no significant difference existed between the two means and (4) supported the reliability of the questionnaire over time.

Results of the Data Analysis for Posttest Research  
Experiments Contained in Research Question 2

The results of the factorial analysis-of-variance (ANOVA) regression procedure used to test the 18 null hypotheses contained within Research Question 2 are reported in Table 8.

Table 8  
Summary Table for the 18-Factor ANOVA Regression Analysis

Source	DF	Type IV SS	F Value	F
QA	4	143.48	8.83	.52
QB	3	503.30	3.37	.38
QC	1	146.78	3.18	.82
QD	1	4.37	3.18	.87
QE	3	295.13	3.83	.81
QF	3	18.38	3.34	.87
QI	1	8.84	8.28	.85
QJ	3	18.87	8.38	.79
QA*QB	12	214.83	8.84	.77
QA*QC	2	15.88	8.28	.78
QA*QD	2	118.78	1.87	.17

As shown in Table 8, significant differences between groups formed by the levels of the 18 grouping variables in the respondent-reported data section of the questionnaire occurred in only two of the 18 items included in the analysis. The Scheffé multiple comparison test disclosed where specific differences would occur between levels of particular grouping variables. Results were as follows:

Hypothesis G. This null hypothesis related to the third respondent-reported data section item in which

respondents were asked whether they were or were not aware of the appointment system at the student health service. An  $\chi^2$  value of 5.17,  $p = .024$ , indicated a significant difference between the mean indices of respondents grouped into those aware Group 1, mean index value of 45.1111 and those unaware Group 2, mean index value of 44.1111 of the appointment system at the facility. This prompted the rejection of null hypothesis 3. From this analysis, I concluded that of those users who responded to the principal administration of the 1994 Patient Satisfaction Questionnaire and completed the entire survey, those aware of the appointment system were significantly more satisfied than were those respondents who were unaware of the appointment system.

Hypothesis 4: This null hypothesis related to the fifth respondent-reported data section item that asked respondents how long they waited to see a health care provider after they arrived at the facility. For this item, the following groups were formed for comparison by the four response choice levels. Group A users waited less than 15 minutes; Group B users waited from 15 to 30 minutes; Group C users waited from 30 to 45 minutes; and Group D users waited more than 45 minutes. The significant  $\chi^2$  value of 143,  $p = 0.0143$  indicated that significant differences existed among the four groups. This led to the rejection of null hypothesis 4. The results of the Scheffe test, which demonstrated where differences between

the groups waited, are reported in Table 8. Study group where she waited less than 15 minutes were more satisfied with health care provided than were those who waited 15 to 60 minutes.

Table 8

Bonferroni Comparisons of Group Mean Values Formed by the Items of Question 8 on the Respondent-Reported Data Section of the 1991 Patient Satisfaction Questionnaire

Comparison of Response Choices for Question 8	Difference Between Means	
A - B	1.326	*
A - C	4.347	*
A - D	5.047	
B - A	-1.326	*
B - C	1.942	
B - D	1.854	
C - A	-4.747	*
C - B	-1.842	
C - D	-0.814	
D - A	-5.142	
D - B	-1.798	
D - C	-0.414	

Note: \* Indicates comparisons significant at the 1% confidence level.

Hypotheses 8, 9, 10, 11, 12, and 13. These hypotheses related to items A, B, C, D, E, and F of the respondent-reported data section of the questionnaire. The mean of these six null hypotheses all produced  $\bar{t}$  values that were not significant, resulting in the acceptance of these six null hypotheses. On the basis of this research, I concluded that during the 1-day data-collection period, no significant

differences in group index means occurred when I grouped users by (a) university classification, (b) number of times respondents had been seen by health care providers at the facility, (c) whether the respondent did or did not have an appointment for the visit, (d) total time spent at the health care facility, (e) whether respondents did or did not have health insurance, or (f) the perceived seriousness of the health problem producing the respondent's visit to the health care facility.

Hypotheses F and G. Two factors prevented inclusion of the tests for Hypotheses F and G in the multiple factor analysis of variance regression procedure: (a) some groups forced by the response choice levels of these two questions contained no respondents, and (b) some groups were too unbalanced to be included in the analysis procedure. The latter situation indicated flaws in the construction of these two items. The final chapter contains a further discussion of items F and G.

### Summary of Findings

Findings of this study supported the validity and reliability of the 1984 Patient Satisfaction Questionnaire. New Patient Satisfaction Index values did not differ significantly when users were surveyed immediately after the health care encounter and when the same users were surveyed by mail 2 to 4 weeks later. New scores for user

satisfaction with the subject student health services as measured by the Patient Satisfaction Index differed significantly when users were grouped and compared based on (a) the patient's awareness of the appointment system at the subject facility and (b) the length of time the patient waited to see a health care provider at the subject facility.

No significant differences were found on mean index scores when users were grouped and compared based on (a) university classification, (b) the number of times the user was seen by a health care provider at the subject facility, (c) whether the user used an appointment for the visit of interest, (d) the total time the patient spent during the health care encounter, (e) whether or not the patient had health insurance, and (f) the perceived seriousness of the health problem prompting the visit to the subject student health services.



## CHAPTER V SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The literature contains documentation of the need to assess users' attitudes toward the health care they receive in specific settings. Patient satisfaction research, now conducted in many health care settings, has progressed slowly because differing needs for satisfaction information have resulted in the creation of few models on which to base replicative studies. Even though patient satisfaction research in college health settings has become increasingly popular and sophisticated, research in this care setting has sometimes yielded data of questionable value.

This study was an effort to improve upon the previous design for assessing users' perceptions of the quality of student health care and services provided by a large northeastern state university, as one step toward developing a model for the profession.

### Summary

Using the Campbell and Stanley (1963) Recurrent, Interrupted-Cycle design, I intended (a) to establish the basic framework for a model for assessing users' perceptions of the quality of health care they receive in college-sanctioned student health services and (b) to provide

similar aims for the subject health service for the optional part of the ongoing quality assurance program. The framework of this model included (a) creation of an assessment instrument with documented reliability and validity, (b) testing of the instrument in one student health service at two different times, and (c) the provision of valid and reliable user satisfaction information to administrators and staff at the subject facility.

I developed and piloted a questionnaire including a multidimensional assessment, that yielded a user satisfaction index. In a 3-day period in one academic term (spring, 1984), 152 users visited the subject health service during regular operating hours. Almost half (48% or 47) completed surveys. Of those who agreed to participate in the follow-up survey, 102 (44%) returned their evaluations.

The index was formed by summing users' ratings of satisfaction and dissatisfaction concerning 15 neutrally stated items. I used the index to compare (a) the satisfaction of student health service users who completed questionnaires during the 3-day data-collection period, when grouped by their self-reported responses to 10 additional questionnaire items, and (b) the responses of a subgroup of the survey respondents to questionnaires they completed immediately after the health care encounter and again 2 to 4 weeks later.

The approach to analyzing the data was (a) item and factor analysis and analysis of variance regression. I assessed

questionnaire reliability and validity. This research generated two statistically significant findings relating to where who participated in the initial administration of the questionnaire: (a) those aware of the appointment system were more satisfied and (b) those who waited less than 15 minutes to see a health care provider were more satisfied than those who waited 15 to 45 minutes.

The final effort of this study included recommendations for improving patient satisfaction assessment in subsequent data-collection cycles in the subject student health service.

Because of the multifaceted nature of this research effort, conclusions and recommendations relate to several aspects of the study: design and administration of the questionnaire, and data analysis and findings.

#### Design and Administration of the Questionnaire

The design and method of administering a patient satisfaction assessment instrument is of utmost importance to those who will use the information. Patient satisfaction investigators can generate valuable data needed to plan, maintain, modify, and improve health care provision. Careful design and administration of the assessment instrument and reporting of the analyzed data assures health care administrators that satisfaction information generated reflects users' perceptions of and experiences in the health care facility of interest.

When subjective data is collected from continually changing groups of respondents using the services of a particular facility (such as users of a university student health service), investigators are afforded the opportunity to improve upon (a) the design and method of administering the assessment instrument and (b) the methods for analyzing data generated by each recurring data-collection cycle.

The following sections of this chapter contain my conclusions and recommendations for improving upon the user satisfaction assessment procedures used in the 1984 patient satisfaction data-collection cycle.

### Conclusions Relating to Questionnaire Design

Pretesting of the assessment instrument resulted in (a) the clarification of several items, (b) simplification of directions for completing questionnaire sections, and (c) selection of a questionnaire format that was more acceptable to respondents.

I altered questionnaires validly according to the recommendations of Nure (1981). I based the domain of satisfaction in the questionnaire scale on domains defined by Burke et al. (1978) and Nure et al. (1979). Also, inclusion of an open-ended item to expose any particular aspects of satisfaction I might have omitted from the questionnaire indicated that the domain of satisfaction included in the satisfaction scale was acceptable.

time analysis supported the content validity of the 10-item satisfaction scale in that each item-domain correlation coefficient was greater than .45, with a range of .515 to .707,  $p = .0001$ . Factor analysis of the domains within the scale supported the content validity of the personal relationship (PR) and the professional competence (PC) domains. The correlation matrix in Table 2 demonstrated that intercorrelations of items within each domain were greater than intercorrelations of items between these two domains. Item analysis of the counterintelligence (CC) domain produced within-factor item and between-factor item correlation coefficients that were below the acceptable .45 level.

Yet, factor analysis of the domains included in the scale produced acceptable domain-index correlation coefficients as follows: PR domain,  $r = .643$ ,  $p = .0001$ ; PC domain,  $r = .515$ ,  $p = .0001$ , and CC domain,  $r = .308$ ,  $p = .0001$ . Using the same domains of satisfaction for their scale, Byarski et al. (1974) reported similar correlation coefficients: PR domain,  $r = .719$ ; PC domain,  $r = .48$ ; and CC domain,  $r = .48$ .

The results of the analyses of questionnaire validity described in the preceding paragraphs supported the validity of the scale items and domains but suggested weaknesses within the CC domain.

The last-visit evaluation procedure that was conducted as an integral part of this study supported the reliability of the questionnaire over time.

#### Conclusions Relating to Questionnaire Administration

The results of the initial survey administration suggested that questionnaire administration procedures increased the number of users surveyed during the 3-day data-collection period over returns in previous years. The presence of questionnaire administration personnel appeared to have had a positive impact on data-collection management.

During the follow-up data-collection activities, one problem with questionnaire administration became evident. Unexpected delays with campus postal procedures and problems associated with the misprinted bulk-rate postage number (referred to in Chapter III) resulted in inadequate time for students to mail to complete and return follow-up questionnaires before the final week of the academic term. By the time I could determine which respondents had not returned questionnaires, the majority of follow-up participants had left the campus area for the between-term break. The impressive 44% return rate might have been even larger if time and circumstances had allowed an additional follow-up contact with those who failed to return the mailed survey.

A related factor that jeopardized the representativeness of the sample populations in both questionnaire administrations was the failure of 13% of the respondents to complete the entire patient satisfaction data section of the questionnaire. These respondents did not select the validity of survey response choice on some items yet failed to check any of the response choices. At this time, I cannot determine if respondents failed to understand these items or merely skipped some items in this questionnaire because of time pressures associated with university life. I suspect that patients who visited the facility only to use the pharmacy may have been confused by these items since they did not readily apply to their visit--the subject of the satisfaction assessment. Strategies for improving upon this situation will be discussed in the recommendations section of this chapter.

### Data Analysis and Findings

I analyzed the data using analysis of variance regression procedures and tested 14 null hypotheses. This effort generated two statistically significant findings: (a) users who participated in the initial survey administration, who were aware of the appointment system at the subject facility had significantly higher patient satisfaction indices than did users who were unaware of this system, and (b) users participating in the initial administration of the

survey who waited less than 15 minutes as did a health care professional had significantly higher satisfaction indices than those who waited from 15 to 40 minutes.

No significant differences emerged in mean patient satisfaction indices when I grouped respondents by (a) insurance classification, (b) the number of previous visits to the facility, (c) whether the respondent did or did not have an appointment for the visit, (d) the type of health care provider seeing the respondent, (e) total time spent in the subject health care facility, (f) whether the respondent did or did not have health insurance, and (g) the user's perceived seriousness of the health matter precipitating the visit to the health service.

Additionally, no significant differences existed in the mean patient satisfaction indices of the subgroup when these respondents completed the questionnaire immediately after the health care encounter and then again 2 to 4 weeks later.

Considering the goals of this research project, I concluded that the data-analysis procedures were appropriate. The project goal was not only to establish a tested model for assessing patient satisfaction and generate baseline user satisfaction data for one health care service, but to provide a basis for continued improvement of this model and its associated methods with each recurring patient.



satisfaction data-collection cycle. The overall success or failure of this research project will be evident in subsequent years.

Even though the nonrandomly selected study group limited generalizability of this research effort, the two significant findings generated by this study suggest a need for (a) additional efforts to educate students of the subject university on how to make best use of the student health service and (b) a highly efficient health service operation employing strategies to minimize waiting time associated with using the subject facility and services.

With the improvements to the revised 1988 Patient Satisfaction Questionnaire recommended in subsequent sections of this chapter, this instrument could be adopted to meet the satisfaction information needs of other college health service administrators. Arrangements have already been confirmed for the replication of this study using a revised and adapted form of the 1988 Patient Satisfaction Questionnaire that includes the recommended changes. This replicative study will take place in a private northeastern university student health service setting.

#### DISCUSSION OF THE 1988 INSTRUMENT

Questionnaire administration personnel provided valuable information relating to the design of the instrument. These individuals reported that respondents appeared to lack the

knowledge of student health service staff, procedures, and services offered—information they needed to answer items F and G in the respondent-reported data section of the questionnaire (Item F, By which health care providers were you seen? and Item G, What services did you want?).

Residence hall administration personnel also reported that frequent questions from respondents about item C in the same section of the questionnaire (Do you have health insurance?), indicated that some users were confused about the difference in having paid the health fee and in having health insurance.

Even though the data generated by these items was suspect--as because it was suspect--the items did provide valuable information on respondents' lack of knowledge about student health service structure and function. Confusion about these three items mentioned above that were included in the respondent-reported data section of the questionnaire supports the need for strategies to educate students of the subject university on how best to use their student health service facility.

Other problem areas of the questionnaire focus on (a) a need for additional demographic data items in the respondent-reported data section and (b) revision of several items in the same section of the questionnaire to facilitate completion of the survey. Item A in this section (What is your university classification?) might produce more variance

information it is now captured by five items as follows: one question each asking (a) the age of the respondent, (b) sex of the respondent, (c) ethnic origin of the respondent, (d) how long the respondent has attended the subject university, and (e) whether the respondent lives on- or off-campus. With such modifications, these items would become grouping variables for comparing mean scores on the Patient Satisfaction Index.

The item asking for the respondent's age, sex, ethnic origin, and place of residence would provide additional demographic data on respondents useful for (a) making additional comparisons of levels of satisfaction based on the mean Patient Satisfaction Indexes of groups of users determined by responses to these items, (b) comparing those responding and those failing to respond to the follow-up administration of the questionnaire, and (c) determining users of the subject facility--information that would be needed in the future when an instrument will be designed for investigating usage of the subject facility.

The fourth additional comparison suggested above (how long the respondent had attended the subject university) may indicate that users who had been at the university for longer and had had more opportunities to use the student health service may have been more familiar with the facility, staff, procedures, and services, and, consequently, might have been more satisfied with the health care they received.

The revision of an item that would separate out users who visited the student health service pharmacy only would reduce respondent confusion in completing questionnaire. Completion of the present satisfaction data section of the questionnaire is appropriate for those visiting the pharmacy only. A considerable number of respondents had visited the student health service only to use the pharmacy. This resulted in numerous questionnaires being returned to questionnaire administration personnel with an incomplete patient satisfaction data section. This could be easily remedied by changing the order of questionnaire items in this section.

Revision of items 7, 8, 9, and 10 in the present satisfaction data section of the questionnaire (item 7, the best of my student health service visits; item 8, the time I spent waiting to see a health care provider; item 9, the convenience of using student health service for my health care needs and item 10, the physical environment within the student health service) would clarify these items and facilitate completion of the survey. These items were based on findings of other patient satisfaction investigations. Clarification of these items may improve item and factor analysis of the CD domain to be used in the 1990 Patient Satisfaction Questionnaire. Also, variability of the satisfaction indices may be increased if items in this section are worded positively and negatively.

Furthermore, the questionnaire would be improved if those respondents visiting the subject facility for pharmacy services only were instructed to disregard the patient satisfaction data section of the survey. Pharmacy-only respondents should be excluded from the follow-up procedures.

#### Recommendations for Subsequent Patient Satisfaction Data-Collection Cycles in the Subject Facility

In this section, recommendations are made for the next two patient satisfaction data collection cycles in the subject student health service. My first general recommendation for the next data-collection cycle is for investigators to once again assess user satisfaction with the subject facility using the subject questionnaire including (a) the recommended revisions that follow and (b) the already-established follow-up questionnaire-administration procedures for assessing the reliability of the revised questionnaire.

Specific recommendations focus on changes to (a) the 1984 Patient Satisfaction Questionnaire and its pretesting and (b) the methods for administering the initial and follow-up surveys. My first recommendations focus on the creation of two additional instruments with which to explore (a) factors affecting access to and usage of the subject student health service and (b) the levels of satisfaction and dissatisfaction of those using the Student Health Division of the subject facility.

### Revisions of the 1984 Patient Satisfaction Questionnaire

Based on the findings of this research study, I recommended the following changes be made to the design of the 1984 Patient Satisfaction Questionnaire before the next administration of the questionnaire.

1. Advise the cover letter of the questionnaire so that respondents are informed (a) that data they provide will be used in a replicative research study, (b) that the investigator hopes to publish the results of this ongoing project designed to improve the provision of health care and services in the subject facility, (c) that they will be asked to participate in a follow-up study that is an integral part of the research project, and (d) that nonparticipation in the study will not be penalized.

The following recommendations pertain to the general respondent data section of the 1984 Patient Satisfaction Questionnaire:

1. Add the five demographic items described in the discussion section of this chapter to the respondent-reported data section of the questionnaire. With the inclusion of these items, the questionnaire should be reviewed and approved by the Committee on Human Subjects Research of the subject university.

2. Revise item 2 (During this visit, how long did you wait to see a health care provider?) by eliminating the fourth response choice and rewording the remaining choices. As only 19 of respondents waited over 45 minutes,

this response choice should be combined with the preceding choice so that it reads, Over 50 minutes (see Appendix F).

4. Revise Item 5 (By which health care providers were you seen?) as it appeared in the 1988 Patient Satisfaction Questionnaire in order to determine if measures taken since the subject data collection to correct the situation of students being unaware of the medical specialty of the health care professional providing their services were successful. The revised questionnaire item could also be educational if it was preceded by a brief statement explaining the function of the screening clinic.

5. Revise Item 6 (What was your total time spent at SHADERS Health Services?) by eliminating the fourth response choice and revising the preceding choice. As only 17% of respondents were at the subject facility over 30 minutes, this response choice should be combined with the preceding choice so that it reads, Over 30 minutes (see Appendix F).

6. Revise Item 7 (Do you have health insurance?) to include a statement reminding respondents that full-time students must pay and part-time students elect to pay the health fee. This added statement might be followed by the questions, Have you paid the health fee? and Do you have health insurance to cover fees for services not covered by the payment of the health fee?

7. Eliminate Item 8 (In your opinion, how serious was the health problem that caused you to visit SHADERS Health Services?) because the findings of this study relating to

this also consistent with the findings of studies cited in Chapter 11.

11. Include and revise item 9 (What services did you use?) and place it as the final question in the general respondent data section of the questionnaire. The first response choice for this item could read, I visited the Student Health Service Pharmacy only and did not use other SHS/HS care providers for services. This response choice should be followed by instructions telling these respondents to skip the patient satisfaction data section and proceed to the summary/agreement/your agreement section of the questionnaire. In this way, pharmacy-only users (a) would not be asked to complete an inappropriate section of the survey, and (b) could be excluded from analyses focusing on quality of care delivered.

#### Recommendations for Questionnaire Administration

My recommendations for questionnaire administration during the next cycle of patient satisfaction data collection include the following items:

1. Present the revised questionnaire in the subject student health facility with a greater number of users in order to identify problems that may not surface when pretesting is accomplished (a) outside the subject facility and (b) with a small number of respondents.

12. Attempt to survey an even higher percentage of initial survey administration respondents by shortening



questionnaire administration personnel at all units of the subject facility.

11. Utilize the involvement of additional subject-facility staff members in the data-collection procedures. The subject study demonstrated (a) the value of questionnaire administration personnel in increasing the percentage of users surveyed during the data-collection period and (b) the need for additional volunteers to serve in this capacity. During this study, subject-facility staff members expressed their interest in and desire to be involved in the next data-collection cycle.

12. Improve the training of questionnaire administration personnel in order to maximize the speediness of their Master study participants' responses to questionnaire items.

13. Plan for data collection to occur immediately after mid-semester examinations to allow more time for contacting follow-up participants who fail to respond.

14. Use first-class mail for administering the follow-up questionnaire.

15. Attempt to increase the return rate of follow-up questionnaire-administration respondents by making telephone calls to those who fail to respond.

16. Since the above changes will result in a slightly longer instrument, I recommend that the revised survey (a) be typewritten so that it will appear no longer than the 1984 version used in this study and (b) be printed on high-quality, yellow paper for the initial administration and blue paper for the follow-up administration of the questionnaire.

The following recommendations pertain to the patient satisfaction data section of the questionnaire.

17. Review this entire section of the questionnaire so that items are written as positive or negative rather than neutral statements relating to the three domains of satisfaction verified by the results of data analyses contained in Chapter IV. Using the procedures recommended by Ware (1986) for generating positive and negative statements relating to each of the three domains, I recommend (a) that numerous positive and negative statements be written reflecting the same content as the items used in the patient satisfaction data section of the 1984 questionnaire and (b) using the Thurstone Method of Equal-Appearing Intervals and a panel of expert judges described in Chapter II, generate 10 items with the same content as those items used in the 1984 questionnaire, five of which are positively written and five of which are negatively written.

The scale would be modified to reflect the respondent's agreement or disagreement with the 10 new items. Scoring procedures for the creation of the Patient Satisfaction Index would be unchanged for positive statements and reversed for negative statements using the following scales:

a. On positively stated items, strongly agree = 5, agree = 4, neutral = 3, disagree = 2, strongly disagree = 1, and unable to agree will receive values

h. On negatively stated items, strongly agree = 1, agree = 2, neutral = 3, disagree = 4, strongly disagree = 5, and unable to answer will remain valueless.

The 15 value-coded ratings of survey respondents will still be summed to create the Patient Satisfaction Index.

According to Ware (1981) this revised version of the questionnaire with positive and negative statements should result in more variability in the Patient Satisfaction Indexes of respondents.

The remaining three recommendations relate to future patient satisfaction data-collection cycles.

18. Create an additional Patient Satisfaction Questionnaire for assessing users' perceptions of the care they receive in the Mental Health section of the student health service facility because (a) the subject questionnaire may be inappropriate for users of student health service Mental Health Division, and (b) users of these services were underrepresented in this study. During the 1983-84 fiscal year, 18.4% of those visiting the subject facility received Mental Health Division services; during March, 1984, 7.8% received Mental Health Division services; and during the 3-day data-collection period, only 2% of respondents had visited the subject Mental Health Division.

19. Recommendations for data analyses are difficult to make until one defines the research questions for a particular study. The suggested recommendation that would

have the greatest impact on patient satisfaction assessment research is a given student health service is the creation of an additional questionnaire that would generate information on (a) usage of the subject facility and (b) barriers affecting usage of and access to the subject student health service. This additional questionnaire would allow investigators to compare respondents on the basis of whether they were users or nonusers for the purpose of identifying barriers to access and for taking action to remove these barriers. I further recommend the use of stratified random sampling procedures for selection of the study group to be examined by this additional, recommended research effort.

20. Finally, on the assumption that adequate personnel and funding were available, I recommend (a) the assessment of user satisfaction take place each fall academic term and (b) the assessment of usage, satisfaction, and the identification of factors affecting usage of and access to the subject facility take place each spring academic term. The addition of this usage assessment would produce a more sound and comprehensive quality assurance tool.

In summary, users participating in this study were very satisfied with health care received at the subject health service. This study resulted in the following changes to student health service procedures: (a) increased efforts to educate users on using the service; (b) in-service education programs to increase staff awareness of problems facing users; and (c) the streamlining of check-in procedures at the subject facility.

APPENDIX 2  
THE 1914 WORKER SATISFACTION QUESTIONNAIRE

Page 019

Dear Students:

Student Health Service strives to provide quality health care. Please help us with your comments, suggestions and opinions concerning your visit to Student Health Service.

To help us evaluate Student Health Service, please complete and return this confidential questionnaire to us.

Thank you for your assistance.

Sincerely,  


Richard E. Shaver MD  
Director

NOTE: Appendix A was originally printed on one's sized at a 8 1/2 x 11 inch sheet of yellow paper. It was later colored lavender. This page is the top surface of the as was made.

SECTION 103 (Continued)

All information on this questionnaire will be strictly confidential.  
Please circle the most appropriate response.

1. How is your knowledge of Florida's transportation?
 

1. Excellent	2. Good	3. Fair	4. Poor
5. Very poor	6. None	7. Don't know	8. Other (specify) _____
2. How many times have you been sent to a health care provider on Florida health services?
 

1. More than 10 times	2. 5 to 10 times	3. 1 to 4 times	4. Never
5. Don't know	6. Other (specify) _____	7. None	8. Other (specify) _____
3. Are you aware of the transportation services on Florida health services?
 

1. Yes	2. No
--------	-------
4. How many times have you been sent to a health care provider?
 

1. More than 10 times	2. 5 to 10 times	3. 1 to 4 times	4. Never
-----------------------	------------------	-----------------	----------
5. By what health care provider have you been? (Circle all answers that apply.)
 

1. Physician	2. Hospital or institution	3. Other (specify) _____
4. Registered nurse	5. Home health care	6. Health care center
6. What services do you use? (Circle all answers that apply.)
 

1. Laboratory	2. X-ray	3. Dental, dental hygiene services
4. Pharmacy	5. Medical testing	6. Other (specify) _____
7. Health care center	8. Health insurance	9. Health care center
10. Other (specify) _____	11. Other (specify) _____	12. Other (specify) _____
7. What are your usual care needs on Florida health services?
 

1. Less than 10 minutes	2. 10 to 30 minutes	3. 30 to 60 minutes	4. More than 60 minutes
-------------------------	---------------------	---------------------	-------------------------
8. Do you have health insurance?
 

1. Yes	2. No	3. Don't know
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9. How would you rate your health?
 

1. Excellent	2. Very good	3. Good	4. Fair	5. Poor
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10. Do you expect to be sent to a health care provider that would you be able to handle health care?
 

1. Yes	2. No	3. Don't know
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**END** This page is the top half of the inside of the folded questionnaire. This page is the general respondent data section of the questionnaire.

Please take your questionnaire with you to be completed at Federal Health Services during 10/1/1980 - 1/1/1981. Use it first by checking the main questionnaire box.

	very important	important	neutral	unimportant	very unimportant	unable to answer
1. The extent of the Federal Health Services						
2. The participation of Federal Health Services in providing health care						
3. The extent of participation of Federal Health Services in providing health care						
4. The participation of Federal Health Services						
5. The participation of Federal Health Services						
6. The participation of Federal Health Services						
7. The participation of Federal Health Services						
8. The participation of Federal Health Services						
9. The participation of Federal Health Services						
10. The participation of Federal Health Services						
11. The participation of Federal Health Services						
12. The participation of Federal Health Services						
13. The participation of Federal Health Services						
14. The participation of Federal Health Services						
15. The participation of Federal Health Services						
16. The participation of Federal Health Services						
17. The participation of Federal Health Services						
18. The participation of Federal Health Services						
19. The participation of Federal Health Services						
20. The participation of Federal Health Services						

Please use this as the first page of your questionnaire.

**NOTE:** This page is the bottom half of the inside of the folded questionnaire. This page is the entire questionnaire data section of the questionnaire.



CONVULS. QUESTIONNAIRE FOR DEPARTMENT

Please be as specific as possible.

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When you have completed this questionnaire please return it to one of the questionnaire collection boxes located throughout the Infirmary.

THANK YOU!

NOTE: This page is the last PAGES of the follow questionnaire. It is the REMINDER/RESPONSE for IMPROVED edition of the questionnaire

-APPENDIX B

THE 1993 PATIENT SATISFACTION QUESTIONNAIRE

Dear Student:

We are continuously striving to improve our Student Health Service to assist you in preventing health problems and sensitive in meeting your needs.

To assist us in our evaluation, we request that you please complete and return this confidential questionnaire to us.

Thank you for your assistance.

Sincerely,  
  
Rebecca M. O.  
Director



102- November 3 was originally covered in each slide as an 8 1/2 x 11 inch sheet of green paper. It was when Colleen Applewhite, this page is the not business of the folded envelope.

## STUDENT HEALTH SERVICE

The Student Health Service strives to ensure that measures of care provided are excellent. Please take us up on your best ideas, suggestions and concerns ensuring your role in the Student Health Service.

After you have completed this questionnaire, please return it to the front desk or one of the service desks.

Thank you

## QUESTIONS

1. How is your satisfaction?
  - a. ☐ Poor
  - b. ☐ Fair
  - c. ☐ Good
  - d. ☐ Excellent
2. How long has your been in the Student Health Service?
  - a. ☐ 1 Year
  - b. ☐ 1-2 Years
  - c. ☐ 3-4 Years
  - d. ☐ 5+ Years
3. Do you know about the appropriate status prior to the visit?
  - a. ☐ Yes
  - b. ☐ No
  - c. ☐ Unsure/Not Sure
4. Do you have an appointment for the particular visit?
  - a. ☐ Yes
  - b. ☐ No
  - c. ☐ Unsure/Not Sure
5. How long did you wait to be seen by a health care professional?
 

0-15 minutes _____	15-30 minutes _____	30-45 minutes _____
45-60 minutes _____	60-75 minutes _____	75-90 minutes _____
6. What was your reason?
 

a. <input type="checkbox"/> Poor	b. <input type="checkbox"/> Reason's Absent	c. <input type="checkbox"/> Reason's Present
d. <input type="checkbox"/> Reason's Not	e. <input type="checkbox"/> Other	f. <input type="checkbox"/> Not Sure
7. What services did you use the visit?
  - a. ☐ Laboratory
  - b. ☐ Pharmacy
  - c. ☐ X-ray
  - d. ☐ Other
  - e. ☐ Consultation
8. What was the total amount of time you spent in the Student Health Service?
  - a. ☐ 0-15 minutes
  - b. ☐ 15-30 minutes
  - c. ☐ 30-45 minutes
  - d. ☐ 45-60 minutes
  - e. ☐ 60-75 minutes
  - f. ☐ 75-90 minutes
9. Do you have health insurance?
  - a. ☐ Yes
  - b. ☐ No
  - c. ☐ Don't Know
10. If Yes, what?
  - a. ☐ Student Government
  - b. ☐ Private
  - c. ☐ Other (Specify) \_\_\_\_\_

## 11. PLEASE RATE THE CARE YOU RECEIVED

	Excellent	Good	Fair	Poor	Very Poor	No Answer
Physical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pharmacy/Inpatient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Acute/Prevention	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Staff & Front Desk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Appointment time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Registered Nurse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lab Staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pharmacy Staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Staff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Waiting, Waiting/Waiting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Was your treatment successful and satisfied with the outcome?

☐ Yes ☐ No ☐ Unsure/Not Sure

13. Would you refer to the Student Health Department again?

☐ Yes ☐ No ☐ Not Sure

\_\_\_\_\_

PLEASE ADD ANY COMMENT TO ASSIST IN EVALUATING AND IMPROVING YOUR STUDENT HEALTH SERVICE

OVER

**COMMENTS/SUGGESTIONS FOR IMPROVEMENT**

(Please be as specific as possible)

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**NOTE:** This page is the back surface of the folded questionnaire. It is the comments/suggestions for improvement section of the questionnaire.

## APPENDIX C

### PATIENT SATISFACTION SURVEY DATA-COLLECTION PROCEDURE

## FIELD RESEARCHER WORKING WITH COLLECTOR PROTOCOLS

Guidance issued: SEPTEMBER, 1989

R.M. 44 - 1 00 (M. Wednesday - Friday March 22, 23 and 25, 1989)

### General Information

These collection protocols are aimed at:

1. MIN to MAX of the two survey collection tables. Table One is located on the table in the front entrance of the house the observer should construction site. Table two will be located in the Pharmacy building area.
2. encourage as many field collectors as possible to complete a questionnaire survey.
3. ensure completion of those completing the questionnaire being needed. NOT to influence their response to the questionnaire, and
4. ask the volunteers who are willing to complete a follow up survey in about one days. The survey volunteers will complete a form in the field with a questionnaire. (Please add surveys. Please assist the importance of these survey volunteers concerning the follow up form. This form will be used to increase the reliability of the 1990 National Environmental Survey instrument (see questionnaire).

### WORKING WITH VOLUNTEERS

On the second day, please:

1. Record the main survey of field original survey (system) as in the follow up survey form (form). (The main survey is a table with number located at the top right corner of the "Main Survey" form (see survey form) by Dr. Hantz.)
2. Have the volunteers with blanked name and address on the envelopes available as your table.
3. Record the main survey of the telephone follow up sheet along with the form name only and telephone number of the survey volunteer. (This will be used only if follow up form is not returned by the survey volunteer is not used.)
4. Ask the survey survey volunteers that confidentiality will be maintained. Once follow up form are mailed to us we will have the survey data (1990-1991) posted (see 1990 - 1991) we will have no record of the completed a survey. The telephone follow up form will be discarded as soon as follow up has been completed.
5. Have survey questionnaires in the telephone house on the 2 collection tables.
6. If you are having field, please take questionnaires in field. (Please include National 1990, form 123 or as National 1990, form 123).

I would like to thank you in advance for helping with the field collection.

Charles W. Hantz  
Charles W. Hantz  
Field Researcher/Observer

PH 44 100 (M. Wednesday - Friday  
March 22, 23 and 25, 1989)  
Walter Hantz  
Charles W. Hantz

APPENDIX D  
TELEPHONE FOLLOW-UP SHEET





APPENDIX B

FOLLOW-UP QUESTIONNAIRE COVER LETTER

UNIVERSITY OF FLORIDA  
Student Health Service

Sevenside Plaza 32611

April 5, 1985

Dear Students:

I am writing to request that you fill out and return the enclosed Patient Satisfaction Questionnaire as soon as possible. We are conducting a followup study on the survey form you completed during your visit on March 28th, 29th or 30th.

I would like to emphasize how important it is to our study that you re-  
gards and return the enclosed form. I would also like to thank you in  
advance for your time and input. A self-addressed, postage-paid  
envelope is included for your convenience.

Sincerely,

*Charles T. McVollie*

Charles T. McVollie  
Health Education/Quality Assurance

AREA CODE 904 742 1185

STUD. SERV. BLDG. 2000 UNIVERSITY BLVD. SUITE 100 SEVEN SIDES PLAZA  
GAINESVILLE, FL 32611

APPENDIX F

INITIAL SUMMARY REPORT ON THE 1984 FACILITY  
SATISFACTION DATA COLLECTION,  
APRIL, 1984

# PHLEBOTOMY Satisfaction Survey

March 28-30, 1984

Number of patients seen, 8:00 am - 4:00 pm

Wednesday, March 28	304
Thursday, March 29	301
Friday, March 30	347
total	952

Number of surveys completed 406 (42.7%)

Number of follow-up surveys mailed April 6, 1984 188

Number of follow-up surveys returned by May 2, 1984 188

Number of follow-up surveys returned after May 2 1

Returned surveys 189

Return rate on follow-up survey (189/188) (101.1%)

## General Demographic Data

Survey Response Frequency Percentages - Original survey, March 28 - 30, 1984

1. What is your University of Florida classification?

1 Freshman	13.81
2 Sophomore	16.23
3 Junior	23.29
4 Senior	28.82
5 Graduate	13.56
6 Professional	2.22
7 Retiree	1.55
8 Other	2.22

2. How many times have you been seen by a health care provider at Student Health Service

1 This is my first visit.	19.15
2 This is my second visit.	14.31
3 Three or more visits but not on a regular basis	41.86
4 I come to Student Health Service on a regular basis	24.68

3. Are you aware of the appointment system at Student Health Services?

1 Yes	88.71
2 No	11.29

4. Did you have an appointment for this visit?
- |       |       |
|-------|-------|
| 1 Yes | 23.36 |
| 2 No  | 21.80 |
5. During this visit, how long did you wait to see a health care provider?
- |                        |       |
|------------------------|-------|
| 1 Less than 10 minutes | 21.80 |
| 2 10-20 minutes        | 23.36 |
| 3 20-30 minutes        | 13.36 |
| 4 Over 30 minutes      | 2.00  |
6. By which health care providers were you seen? (Circle all numbered responses that apply.)
- |                         |       |
|-------------------------|-------|
| 1 Physician             | 42.71 |
| 2 Registered Nurse      | 27.21 |
| 3 Physician's Assistant | 22.71 |
| 4 Nurse Practitioner    | 22.40 |
| 5 Other (specify)       | 14.21 |
| 6 Unable to answer      | 4.71  |
7. What services did you use? (Circle all numbered responses that apply.)
- |                                    |       |
|------------------------------------|-------|
| 1 Laboratory                       | 24.00 |
| 2 Pharmacy                         | 49.00 |
| 3 Exam & Clinic                    | 13.00 |
| 4 Surgery Clinic                   | 3.00  |
| 5 E-visit                          | 4.36  |
| 6 Mental Health                    | 2.00  |
| 7 Health Education                 | 1.00  |
| 8 MRI Clinic                       | 3.75  |
| 9 Sexual Assault Forensic Services | 1.00  |
| 10 Other (specify)                 | 11.41 |
| 11 Unable to answer                | 3.00  |
8. What was your total time spent at Student Health Services?
- |                        |       |
|------------------------|-------|
| 1 Less than 30 minutes | 31.40 |
| 2 30-45 minutes        | 44.80 |
| 3 45-60 minutes        | 12.40 |
| 4 Over 60 minutes      | 8.75  |
9. Do you have health insurance?
- |                    |       |
|--------------------|-------|
| 1 Yes              | 11.40 |
| 2 No               | 28.21 |
| 3 Unable to answer | 3.00  |
- If you answered "Yes" above, is it
- |                               |       |
|-------------------------------|-------|
| 1 A Student Government policy | 21.40 |
| 2 Your parents' policy        | 44.00 |
| 3 Other (specify)             | 11.40 |
| 4 Unable to answer            | 4.75  |

13. In your opinion, how serious was the health problem that caused you to visit Student Health Service?

1	Very serious	1.7%
2	Serious	59.3%
3	Not serious	37.4%
4	Unable to answer	1.6%

#### Patient Satisfaction Data

	very satisfied	satisfied	neutral	dissatisfied	very dissatisfied	unable to answer
10. The caring attitude of the health care provider.						
	58.3	34.8	5.3	1.3	0	1.3
11. The responsiveness of health care providers to questions about my health.						
	42.2	34.4	8.1	1.3	0	4.8
12. The amount of preventative information offered to me by Student Health Service staff.						
	33.4	32.8	21.4	3.8	1.0	16.1
14. The explanation of my diagnosis.						
	24.8	33.8	13.4	4.3	3	10.4
16. The explanation of my medical treatment.						
	25.4	34.8	12.8	2.3	1.5	9.8
18. The medical competence of the health care provider who saw me.						
	49.2	26.4	8.3	1.3	1.0	3.8
19. The cost of my Student Health Service visit.						
	28.3	33.4	14.8	3.3	2.2	7.8
26. The time I spent waiting to see a health care provider.						
	17.2	24.3	22.3	9.3	4.0	7.8
28. The convenience of using Student Health Service for my health care needs.						
	47.1	29.1	18.8	3.3	1.3	7
29. The physical environment within Student Health Service.						
	27.3	44.4	22.8	4.3	1.8	8

From Patient Satisfaction Index of 100 complete original PES surveys = 91.08

### Comments/Suggestions for Improvement

Of the 408 PSS questionnaires completed during March 28-30, 1984, 126 included comments/suggestions. This open-ended section of the questionnaire is particularly important because it provides an additional means of assessing validity of the PSS questionnaire. Patient satisfaction assessment is a continuing process which requires that the assessment instrument be improved with each administration. Numerous comments on patient satisfaction issues not addressed in the PSS instrument identify variables that should be included in the revised questionnaire. The open-ended section also provides respondents an opportunity to single out aspects of satisfaction with health care about which they feel most strongly.

Many have argued that the typical college health service user is not qualified to judge quality of health care. Whether qualified or not, SHS users still make these judgments which influence their use of campus health services. Users probably share their evaluations of SHS with their peers broadening the impact of these judgments and underlining their importance.

The comments/suggestions following do not necessarily represent majority opinion but rather the range of responses. Some reflect a lack of awareness of health care services in general. Others reflect a lack of awareness of SHS services and procedures. Comments about dissatisfaction with quality of care and staff seem to reflect to specific instances of care and are undoubtedly colored by influences other than what is reported in these brief patient statements.

Subjective data from the open-ended section has been categorized as follows: issues concerning access, such as cost, convenience, making appointments, waiting and insurance issues; issues concerning quality of consultants, such as sensitivity, medical competence, staffing, comments on specific clinics/services; issues concerning the SHS facility and supplies for improvement of SHS.



# Comments Concerning Access to Health Care Services at JHS

NOTE: All comments are reproduced verbatim.

## SUBJECT: COMMUNICATIONS AS IT APPEARS ON THE QUESTIONNAIRE

- 001 My only complaint is that oftentimes I am hard, first place to place with each person waiting me to see someone else. The communication is very poor..
- 004 Service is a little slow especially around lunch time. You really are never told what the person wanting you is, he, she, him, her, etc. ...
- 007 Waiting is a real problem. I find it ridiculous to wait in a parking garage and then not being able to park for lack of space. This inconvenience has resulted in my having to be to several appointments as well as JHS losing me several costly tickets.
- 008 It is easier to make an appointment but the waiting time is so long.
- 012 I waited about 10 minutes to see the doctor and was out within 10 minutes, which was very good time considering not having an appointment.
- 016 The lobby is a mess! I've noticed - I've never been served as quickly as I was today. Usually I can count on waiting about 10 - 15 minutes just to get my file to go upstairs to Women's Clinic. Everyone is on their toes! It's great.
- 019 I find the appointments are helpful because the last time I was here I didn't have you could make them.
- 022 The pharmacy is very convenient but a lot of red tape.
- 026 It took too long just to receive a prescription. I tried to make an appointment but was told I had to wait one, I think it would have helped.
- 029 Antepartum Clinic has a long wait. Reasonably long, I've waited before over an hour and 1/2, sometimes 2 hours. Some of the clinics require more privacy for the patient, ie, the Trauma Clinic.
- 038 The waiting is too long, especially if you need to see a physician after seeing the RN.
- 039 Arrived at the scheduled period of time at took me to see someone and got lost.
- 049 I just came in for the test for a physical - to and out.
- 051 New patients of students is a little slower.
- 053 Last time I was here and waited about 10 minutes/was pleasantly surprised with the waiting time this visit.

Student Comments Continued

- 424 I am satisfied with the SMS in all areas except the waiting beforehand sitting between 30 and 40 minutes to see a doctor seems ridiculous to me. Perhaps if they could improve in this area, students would benefit.
- 431 I have had no problems with SMS but being a Dental Student, it is important to see in the Infirmary instead of Stands. Also, working in a real practice.
- 435 The waiting room seems like a breeding ground for germs, is warm, very close seating, many people.
- 447 Speed up time of service and of delivery of drugs at Pharmacy.
- 480 Don't tell people they "don't need an appointment for that". I waited over an hour when all I needed was 5 minutes with the Physician. Usually the SMS is very helpful. The last time was an exception.
- 488 Have physicians on the stand.
- 500 Maybe move a bit faster.
- 522 Requires more efficiency in processing students and letting them see a doctor.
- 550 Even though I had an appointment, I had to wait quite a while. Maybe they could change that.
- 631 The Health Service is a big help with my allergy shots. It saves an alot of time and hassle because I would otherwise have to make the bus to RHH Terrace to my doctor's office.
- 658 The new parking policy and the redecorating are great but don't go far enough.
- 717 It is about a 2 month wait to have an examination for tooth control. That's too long.
- 415 With the situation as such, I cannot foresee a lessening of the time necessary for such a visit. Overall, I am very satisfied with the services available.
- 760 I especially like the low prices at the Pharmacy.
- 101 The West Clinic is only one day/week and is difficult to substitute. Parking is terrible/inconvenient and I have to walk several miles to get here because it is unavailable.
- 102 I thought I should have been given an appointment when I called, instead of being told to wait 15.
- 268 As a student I am disappointed with the Infirmary fee. It is too high.
- 355 Took very long without an appointment.

Access Comments Continued

- 738 is a visitor, during my initial visit, I paid a \$5 processing fee. It was then realized that the amount of medicine prescribed was insufficient and I had to come back for more medicine. I was charged an additional \$5 fee due to no error on my part. This should be rectified in the system.
- 838 Less waiting time, more parking spaces, later hours for cashier - I always have to pay at the Pub because my appointments are in the late afternoon at 5:00 and the cashier closes at 5:00 when there are still patients being seen.
- 978 More parking. Spent 20 minutes looking for a space.
- 445 The signs on the front desk says to make an appointment instead of walking in, so I walked and they didn't give me an appointment. Anyway, no problem in this case, but what do they make appointments from. It isn't a major problem in my book.
- 480 The health insurance procedures are confusing/complex. Also, I would like to know more about what the laboratory offers besides treatment for some chronic, for example, women's health services, etc. "
- 544 It would be more helpful if, when you return to see a doctor the next day when he tells you to, that the procedure to see whether he opened up. As it now is, you have to first see a nurse or the doctor is usually either not available or can't be reached.
- 608 I have been to SBC at least 4 times for myself or for someone else. All but this last time I had to wait too long for an appointment. I have no other complaints other than the parking is terrible and there should be another physician on call to help with this.
- 748 Waiting time for service should be decreased.
- 428 I had to wait over an hour to be seen by the physician which was quite annoying... The Pharmacy, however, was very quick to fill my prescriptions.
- 758 I had to wait over a week for a doctor's appointment on 3/27 and it was important enough to be seen sooner. I was rushed through the appointment, too. Today's visit was very helpful, however.
- 432 There needs to be more staff during lunch hours since this is the time when students also have free time so that they make visit.
- 404 In order to see a Bone Specialist, one will be usually a week or two. The SBC should acquire another orthopedic surgeon.
- 420 Speed up things especially at the Pharmacy.
- 582 Unsure of exactly what I got for my laboratory fee.

## Access Comments Continued

- 71 It seems the time to wait to be seen has decreased recently--a plus (one problem--I had to wait on 3/25 at the Lab until I 30 until the staff returned from lunch)
- 256 The waiting time is usually almost tolerable.
- 486 More staff needed, more pleasant surroundings.
- 547 The amount of time from my first visit to my second visit was long. By the time I would get to see a doctor it would have been 2 weeks. So this time something serious could come up. I fear this wait is detrimental to health care.
- 771 The Infirmary is adequately priced and very convenient.
- 138 Greater accessibility PFTIOW.
- 888 I basically have no complaints except that during overnight visits for which I had no appointment, the wait was quite long (approximately 40-60 minutes).

## Comments Regarding Quality of Care/Staff at SSS

- 078 Not water in the Lab very rude! Asking patients why they have it come earlier in the day, so they didn't have to wait so late. I was the only to deal with such rudeness from health care professionals.
- 079 The health care exceptional I have received has been extraordinary particularly Dr. March and Dr. Cantwell. However the clerical help who take initial information and the appointments receptionist can only be characterized as abrasive. With this exception, I am quite satisfied with clinical services. Also, Robert Atkins in Pharmacy has an outstanding attitude about his job. He is very informative, caring, friendly and he has made numerous visits with both patients.
- 080 Seems to be well organized operation.
- 081 This visit was just to get a prescription filled at Pharmacy but on previous visits to SSS I have been very satisfied with all aspects including wait time. The professional staff is excellent in service and attitude. I consider it a privilege to be able to use the SSS.
- 082 I came here and I had was a prescription on how to cope with some salt water for my sore throat and rubbing for my cold. That I stopped.
- 083 I have always found the physicians helpful. My husband visits the Jeffery on a regular basis and is also satisfied. Once, however, last summer, I visited the Women's Clinic for a problem which went undiagnosed by the NP but was detected by my regular GYN.
- 084 Excellent Pharmacy services.
- 085 The woman who works at the front desk just not the most delightful woman I've met.
- 086 People at front desk not very friendly.
- 087 Want Chiefly RN needs to be better informed concerning the problem they treat people for. I will probably be scared for life due to their ignorance.
- 088 Health care providers should be aware of patient's privacy. I have often heard doctors/nurses discussing patients' problems in front of a group of other patients. Also, the procedure in the Women's Clinic where you have to carry your urine sample out to the waiting room and with you to your visit with doctor and then to the Lab should be improved.
- 089 More doctors needed.
- 090 Have used many services of SSS and have received satisfactory to good services.

# Quality of Care/Staff Comments Continued

- 452 I have no complaints. It would have been a little better if the physician I saw was more personable or friendly. I sat upstairs and he was unwilling to answer some of them. Probably rushed.
- 456 Watching people drink coffee while waiting to be seen is irritating since if the people are not involved with the patient. They should have a lounge for breaks. Sick people are not always understanding their job.
- 460 Should have more qualified medical staff.
- 462 I was surprised that I didn't get a private consultation with the doctor but instead was in a room where someone else was also being consulted. This may have been because of my circumstances.
- 476 In Stoney Creek, I came in many times with symptoms of bladder infection and urinary calculi I find anything but they never recommended seeing a doctor or specialist or ever going to the lab. If there is some kind of problem I should be seeing a doctor.
- 480 I have found on times that the clinical help (including physicians) have been very unorganized and delinquent. Last month, I was informed that one of three tests were not performed on me in lab because my doctor (husband) had lost my lab sheet and refilled it out incorrectly.
- 482 When I came as a patient I was attended to satisfactorily. The Pharmacy is fairly efficient and informative.
- 490 You are doing a good job -- keep it up. PS, I like the idea of this survey.
- 512 When I was here for a broken arm, my visit to the X-ray department was lingering. I had to wait there anywhere from 30 - 40 minutes. The nurse said that (5) that dept. was understaffed and (2) there was usually only one person there and it took that person some 5 to 10 minutes to take out the records. Allergy clinic is very well organized.
- 522 No complaints.
- 532 I like the service I receive whenever I come to bed.
- 536 I thought the Nurse Practitioner in Women's Clinic was great.
- 552 Got a new girl at the front desk. She became very rude when I went back down to her to see if she had my blue laboratory card and she got pretty immediately saying "we have no records to find your card, you must have it somewhere".
- 622 I have seen a great improvement in the service and operation of the during my 3 years at St. Your efforts are appreciated.

# Quality of Care/Staff Comments Continued

- 80 The physician assistant was very competent. He explained to me exactly what he thought my problem was and what my procedure was going to be.
- 82 A more personable approach as well as attitude would be beneficial. Although my general opinion of the health service is satisfactory, selective instances in which improvement is possible to great.
- 113 The rigidity of the bureaucracy here is unlike any other place of medical provision that I have ever seen. It can be very frustrating. Doctors should never look at a patient and without test or examination believe that they appear to possibly have an illness which is terminal.
- 124 The response of my satisfaction referred to the East Clinic. However, I've visited the West's Clinic on several occasions and have always been dissatisfied with the caring attitude - to the point of disgust and not wanting to return for any reason.
- 439 There are many instances where I would prefer to see an MD rather than a PA. I've already been misdiagnosed once at the Infirmary (It was told that I had torn ligaments in my ankle when in reality it had been broken. It was re-fractured by an Orthopedic surgeon a couple weeks later).
- 50 Do not attribute anything
- 558 I see & have much confidence in the Lab
- 600 Good service and nice doctors..
- 628 The West's Clinic people are great. Warm, caring, explain things to you, let you look.. they are wonderful. Lab people are always in a bad mood and often disrespectful. Maybe they need more training. Pharmacy staff is always real nice and explains things..
- 648 I am very satisfied with my visits to the Infirmary. I have always seen Dr. Brown and I will continue to request her as my physician. She is very thorough and genuinely cares about my situation.
- 740 The Lab Technician with a smile--they almost always are
- 761 My doctor & the LP have more medical stuff?
- 780 I don't feel as if the physician really took enough time diagnosing me. She seemed in a rush. She told I'd be applying here for me that I should have done at the drugstore.
- 783 It appears that the only way to see a doctor here is if you are practically dead on the floor. Many times, the MDs have not provided satisfactory services, have misdiagnosed, and have prescribed unnecessary medications at unwanted expense to me.

# Quality of Care/Staff Comments Continued

- 375 In general, I have been very satisfied with the services. However, on several occasions, I have seen foreign doctors. While I have confidence in their competency, I found that the language barrier proved to be difficult. As a result, they came off as being somewhat insensitive.
- 100 After the surgery break, I had a throat culture taken by a MD PA for strep throat. Two days later, I had another culture taken by a doctor at home. When I came back as a follow up, I was told my results were negative, but my home doctor's results were positive. I was given several medications due to the discrepancy, but I feel that if less work is done, it should be done more carefully just to make something more serious may have been missed.
- 500 Mrs. Jane Pleasant (last name), The young lady out there is pleasant, competent and nice. Since this is the first impression people get here, her attitude gives a bad name to an otherwise awesome place.
- 475 I have unfortunately visited the clinic many times and have been pleased each time.
- 400 The first lady I saw did not seem competent. She had to refer me to another physician, prolonged by wait. Students have classes.
- 910 If I get well I'll be even more pleased.
- 100 On the part, I have been dissatisfied with some services. I have received information and been misdiagnosed by some practitioners. I have been dissatisfied with the fact that I do not receive continuous health care from a single, competent health care provider but rather am shuffled around for different problems.
- 125 When I arrived at noon on 1/28, I got a very cold reception from the girl at the front desk, questions as to whether or not mine was an emergency visit or not. I waited an hour to be seen by the NP, but I received adequate care during that wait in an examining room. I think there needs to be more staff during lunch hours.
- 417 I have been consistently impressed by the quality of care provided at the Women's Clinic. As an undergraduate at another facility, the services were not nearly as good. Thank you.
- 007 The NPs don't know what they are talking about.
- 080 I had an appointment with a physician which I had to pay for and he seemed unconcerned with my problem. The nurses are much more attentive.
- 200 I have been a student here for six years. The NPs have all been very considerate especially in STD and Adolescent Clinics. The therapy employees are compassionate and knowledgeable. But physicians' offices are unnecessarily alarming and impersonal and despite in the lab and other general services are often early, impersonal and poorly run-organized.



# Quality of Care/Staff Comments

- 508 No complaints. This was my first visit to the health clinic and I was quite impressed!
- 428 I am always satisfied with the laboratory service and staff. Everyone is helpful and caring and I have never had any problems.
- 715 I am satisfied with the care usually but this semester I have experienced dissatisfaction with the diagnoses... They were unable to pinpoint what was wrong.
- 280 I have been here before and I have always been satisfied with the care I have received.
- 143 The only procedure which baffled me was that 3 student workers were standing about at 11:45 but wouldn't check anyone in until 1:00.
- 164 On two separate occasions I have stayed overnight at MSU. Extremely impressed with the caring attitude of nurses and especially Drs. Gross and Cartwright. Absolutely no complaints.
- 180 I feel that more hours should be available for receiving medical treatment and diagnosis. Many people, including myself, become sick at odd hours of the day, such as the late night or early morning. If there was at least one physician on call 24 hours a day, it would be very beneficial to me and many other students.
- 265 I had Lymes some time ago and was not pleased with the way the lab treated me. I am not comfortable in a hospital environment to begin with. These two joined about other cases and my discomfort in being of me. They seemed very unsympathetic toward me. They seemed very unprofessional toward me. (This is the only unpleasant incident that has happened to me).
- 452 I think it is a very necessary service and works well.
- 448 Dr. Wade is an excellent doctor and the lady at the appointment desk (one black lady) is super nice too.
- 248 My physician was a man named Sam and he was very good.
- 408 The Women's Clinic has been very helpful. They offer advice and are genuinely concerned with my health.
- 447 The only complaint is that I was very sick during finals week, was not advised to by a physician (by a nurse), and was not home until my physician saw me during Christmas vacation... The nurse did not explain my sickness.
- 495 I was pleased with everything that I encountered and thought that all the workers were very kind and courteous.

Quality of Care/Staff Comments  
Continued

- 381 I was an impatient test taker and I thought the care I had was excellent. Dr. March took great care of me. I thought the girl in the lab could be a little friendlier.
- 384 Only negative comment had to wait some time. Otherwise, got to see a MD and just an appointment.
- 402 The girls working at the front desk that I have dealt with were generally "nice" when I asked how long it would be - just an idea. 30 minutes seems a big difference when compared to 60.
- 415 I was here for Mental Health counseling and found that many of the questions don't really apply to my visit.
- 418 The Medical/Pharmacy staff are always very courteous and helpful.
- 430 More personal and emotionally caring behavior will be quite helpful. Better diagnostic explanations are needed and it is next to impossible to get satisfactory diagnostics for infectious diseases unless you are on the verge of death. The reason given is that it is probably a virus. I feel the high frequency of complaints about this phenomena has led inadequate diagnosis.
- 433 I am very satisfied with services. A new building would be great for all involved. I'm glad to hear this topic under consideration.
- 438 Keep up the good work.
- 439 It is pretty difficult to judge the service from one visit. As this opportunity I think I am satisfied.
- 440 Everyone is very helpful.
- 461 I feel that the services I have received have been very satisfactory. The Women's Clinic is well run and well staffed.
- 464 I was very impressed by the professional counseling I received from Dr. Moore in Mental Health. He helped me immensely and I'm very grateful for all he did.
- 482 I feel the Women's Clinic is efficient, friendly and a valuable asset to this community. They make what could be a very uncomfortable situation into a reassuring experience.

### Comments Concerning SP Facilities

- 405 Sat with the program in regulating temperatures. I'm dying of the heat in here
- 410 Fix the elevator
- 414 The writing room seems like a breeding ground for germs...
- 417 It has gotten better since IEM, organization, appearance
- 427 The air conditioning is too high (warm). It is always uncomfortable...
- 439 The new parking policy and the landscaping are great but don't go far enough
- 454 We need a new building desperately. The lab is very small and cramped and the acoustics inside of the building is depressing. With a new building, better facilities could also be included with more advanced equipment...
- 467 The temperature in the writing room is very uncomfortable (too hot)
- 485 The student studying/working area is far too international and everything IAC is said can be heard by others - it's an uncomfortable situation
- 496 Learning objectives and the files sitting around in the writing room is a little distracting
- 508 The writing lobby is too congested. You need more space
- 482 Need new surroundings
- 618 A more personable environment as well as attitude would be beneficial
- 621 Current reading material in Waiting Area
- 659 Fix elevator. It is difficult to use stairs with crutches
- 717 One complaint I do have in the waiting area. I feel during periods of breaks as in the session or whatever, they should make scheduled visits or make a better time table. I have got gone on two separate times due to the matter of people waiting. I did not want to sit 20 minutes in a room full of people carrying the, cold and and have what other opportunities I needed
- 821 Reading magazines while waiting

# Suggestions for Improving Student Health Service

- 498 Could spend an evening time by doing more preliminary screening and thus keep patients busy and happy. Pharmacy is excellent. Waiting room is acceptable and noisy because set up is the same as front office and CHS-18 cluster.
- 679 Please improve patient ward. Install telephone sockets so people can use phone in privacy. I will help to get the money from SO up a project and also to exchange new chairs also replacing chairs with heating vibrators. Also cable television.
- 947 Advise that you take appointments
- 1111 It would be nice to provide those who regularly visit a clinic at SO with a semester long pass for preliminary parking, I don't remember these students to sign in at the preliminary desk to avoid abuse of the privilege. It is a great inconvenience to have to stay and explain every week why we need parking permits, especially when we must do this throughout our stay at the University of Florida.
- 1224 Women should be asked if they want to see a male or female doctor when receiving treatment from the Women's Clinic.
- 1307 I think there needs to be more staff during lunch hours
- 1444 I feel the health club should be optional considering many students have or would prefer to see a private doctor. Also, all students should have the option to see a doctor at their own discretion, rather than the K's which push people through the door with an assembly line process. We cannot write prescriptions and often send patients away with no treatment.
- 1644 I think that to delay writing appointments should be scheduled for every 30 minutes instead of every 15 minutes.
- 1680 If possible, I would like to be seen by the same physician on my visit. It would help to know the schedule of the physician on duty.
- 1740 Need more reading materials in waiting areas
- 1811 There needs to be more staff during lunch hours since this is the time when students also have free time so that they can make visit.
- 1813 On my third visit I was asked who I had seen the previous day. I had to say I'd been unseen. I asked to see a different nurse tag. I think that the doctor, assistant or nurse could tell the patient their name. A more formal atmosphere would be established. However, I felt very comfortable with the nurse who saw me. There is an overall pleasant atmosphere in the infirmary.

## Suggestions continued

- 284 The waiting is usually almost unbearable. I think if the appointment system were pushed a little more, the wait would not be so bad because there would not be as many walk-ins.
- 158 All personnel should wear visible name tags with their job on it. Often when I'm here I can't tell a nurse from a doctor from a medical student. I usually have better, faster service from walk-in than appointment. It takes too many days to get an appointment. Need more staff for the house & clinic. Hire a cardiologist.

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## BIOGRAPHICAL SKETCH

Charles T. Schaffie was born in Sigbee, Florida, where he graduated with honors from Lakeland High School. He received a Bachelor of Science degree in business administration from the University of Florida in 1973. Charles served in the United States Navy as a personnel administration specialist for 3 years and managed two businesses during the next 3 years. A desire to work with people and within the health care system brought Charles back to the University of Florida in 1980 to earn a Master of Health Education degree in 1981.

During his graduate studies at the University of Florida, Charles was an adjunct instructor for 3 years in the Department of Health Education and Safety and for 3 years in the Department of General Physical Education. During his doctoral studies in the College of Education, he was a graduate assistant for the College of Education and a health educator for Student Health Service, University of Florida.

For his service to the University of Florida, Charles was recognized by then president, Robert G. Kerensan, as one of 100 Outstanding Students for the 1983-84 academic year. Charles was also designated an Outstanding Young

Leader in Allied Health for the Southeast Regional Center for Allied Health Instructional Personnel in 1983.

Charles is an active member of the American College Health Association and the American Society of Allied Health Professionals.

Upon graduation, Charles has accepted a position at the Division of Health Services, University of Rochester, Rochester, New York. In his new position, he will be serving as the Patient Advocate and will establish a health education division at the Division of Health Services, University of Rochester.

Charles' special interests include modern dance teaching and choreography, writing, and creating educational media for his work in health education.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Raymond C. Morgan, Chairman  
Professor of Instructional  
Leadership and Support

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

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